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Bus. Adm.

JOURNAL *of* FARM ECONOMICS

FEBRUARY, 1938

CONTENTS

THE FIFTH INTERNATIONAL CONFERENCE OF AGRICULTURAL ECONOMISTS

Macdonald College, Ste. Anne de Bellevue,
Quebec, Canada
(Twenty-five miles west of Montreal, Province of Quebec)

August 21-28, 1938

PROGRAM

The program for the sessions of the Conference contains four main subjects, Agriculture and the Rural Community, Land Tenure, Farm Labor and International Trade in Agricultural Products. These subjects will be introduced and discussed by representatives from the various countries in attendance. In addition to these main subjects, round tables will be held for the discussion of selected topics including International Statistics of Agriculture, Trends in Marketing, Objectives in Agricultural Policy, Farm Management, Consumption of Agricultural Products and Price Analysis. The third section will provide opportunity for presentation of papers without discussion. A more definite announcement of the program will be made in the May issue of this Journal.

TOURS

Tours will be arranged only on condition that a sufficient number of members indicate their desire to take such trips.

A week's pre-conference motor bus tour of Quebec, through the farming areas of French Canada.

A week's post-conference motor bus tour through eastern and central Ontario and north western New York State.

A railway tour (summer rates) Montreal to Western Canada, returning via St. Paul, Minn., Madison, Wis., Chicago, Ill., and Lansing, Mich., to Montreal.

RECREATION

Golf, tennis, bowling, swimming and short trips to nearby points of interest will be arranged.

ACCOMMODATION

Those attending the Conference will be lodged in the Macdonald College dormitories. Reservations should be sent to the Chairman or Secretary of the Canadian Committee prior to August 12th.

CANADIAN COMMITTEE ON ARRANGEMENTS

J. E. Lattimer
Macdonald College
P.Q., Canada
Chairman

J. Coke
Department of Agriculture
Ottawa, Canada
Secretary

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NEW HORIZONS IN AGRICULTURAL ECONOMICS

M. L. Wilson
Under Secretary of Agriculture

I

Dr. Joseph S. Davis in his presidential address before the American Statistical Association last year made a striking, may I say, almost shocking, proposal for the establishment of what he calls Schools of Social Engineering. His thought-provoking statement deals with the future policy of the craft of farm economists.

In this statement he ceases to be the cold economic analyst and really proposes a line of action which I am sure three-fourths of the farm economists would call revolutionary and at least half would say was just about as ill-considered as many think the New Deal program is.

We must remember that our distinguished past president springs from a different intellectual soil than most of us, and his daily tasks are somewhat outside of our particular current. Practically all of us farm economists are sons of the soil, graduates of Land Grant colleges, closely identified with the Federal or State Governments. Without our knowing it, probably our academic liberty and inventive initiative are conditioned appreciably by government and public opinion. One reason why I like to pay particular attention to what men like J. S. Davis, E. G. Nourse, John D. Black, H. C. Taylor and others say is, that they are less dependent upon such public institutions.

The bold revolutionary statement made by my relatively conservative friend Dr. Davis is that some pretty definite thinking should be done at this time regarding the functions of economics and what he calls Social Engineering. Let me read a couple of paragraphs from his three page statement:

For decades our universities have had, alongside departments and schools of the natural sciences, other schools or departments of engineering and medicine. Professors of physics, chemistry, and biology are

flanked by colleagues who concentrate on applications of natural science to serving men's manifold needs and curing or preventing their diseases, and on training engineers, architects, doctors and surgeons to practice their professions in transforming a "rum world" into something less "rummy." The progress of pure science and the contribution of engineering and medicine have been mutually invaluable. Largely as a result, they are revolutionizing our world at marvellous speed.

He continues:

I submit that our departments of economics, political science, and sociology should be flanked by departments or schools of social engineering, economic medicine, political architecture. The specialist in solving social problems could be trained and research directed to such practical ends could be carried on. There is room for social engineering, workshops to parallel our engineering laboratories. On the educational aspects of my rash proposal, I cannot elaborate here; and if I seem to make bold leaps across yawning voids, it is because I am desperately trying to keep in step with the inexorable march of time.

I want to quote three further short statements:

Let us, however, frankly recognize the distinction between pure science and its application, in our field as in others. We do not expect a physicist to build a bridge or a biologist to treat cancer. No more should we, if we are primarily economists, political scientists, or sociologists, set out to be social engineers or social doctors.

Another:

There is urgent need of well-trained, specialized professionals who will concentrate on specific means of correcting our economic, political, and social defects, thereby transforming this half-crazy world into something less topsy-turvy.

The third:

If some among us choose to change their professions, let them do so but with their eyes open. The rest of us have indeed a responsibility and opportunity, but it lies in helping to build up new professions to perform such tasks, instead of amateurishly tackling them ourselves or leaving them to be bungled by quacks outside our ranks.

Dr. Davis makes the following assumptions: (I am taking the liberty to use the qualifying word "agricultural" where he uses the generalized expressions "economics" and "social engineering.") First, the functions of agricultural economic science and agricultural social engineering are different. Second, the time has come to recognize these differences and to speculate about the parting of the ways of these two functions. Third, by implication he indicates that the field of agricultural economics should be clarified. Fourth, we need to get started on making the world less "rummy" right away. Otherwise, the quacks and the sand men will get us if we don't look out.

Six or seven years ago when I first began reading and talking

about economic planning, I boldly called it economic planning and since I was in a college department of agricultural economics, I thought that the farm economists were chosen of the Lord to do the job. But later experience and my present point of view leads me to think that Joe Davis is right. I shall attempt here to state briefly, first, why I think there is logic to this radical proposal, and second, outline some of the things which the proposed new schools of agricultural social engineering must develop, if they are to keep the world from going "rummy."

II

The type of thing which I have ascribed to Dr. Davis is getting abroad in the land and developing into a trend. The symptoms and evidence of this trend become more apparent all the time. Dr. A. G. Black made an excellent statement of this last year in the JOURNAL OF FARM ECONOMICS under the title of "Generalists."[1] Recognizing the value of highly specialized research, he pointed out a need for men of broader training to assemble the products of research, to apply them in general leadership, and to serve in posts of public responsibility.

The expansion of governmental functions which is taking place in civilization today produces a specific demand and necessity for planning and policy-formation as a basis for action and directing action. And it is becoming apparent that much more is asked for in this demand than the science of agricultural economics can give. More and more social engineering is going on in agriculture each year. The first important steps in this engineering took place in the formation of the Bureau of Agricultural Economics. The function is now being performed by the Bureau, the program planning sections and officers of the action agencies, county planning projects of the Extension Service, the policy committees of the farm organizations and co-ops, and the Land Grant Colleges.

Now for the specific reasons why I agree with the assumptions which Dr. Davis used. First, by temperament, training and social philosophy the mine run of the present-day agricultural economists and those who are in process of training are principally concerned with research, gathering data, and developing the conclusions which these data justify. Another very important and necessary function in which they are trained is that of critical analysis —taking what is and showing how rummy it is and letting it go at that. By way of illustration, I have a very dear good friend among the agricultural economists whose one and almost only ray of light that he sees in this mixed and turbulent agricultural

[1] Vol. XVIII (4): 657–661, 1936.

world is the Reciprocal Trade Agreements program. But I doubt if he is any more than tacitly interested in the complicated techniques of developing reciprocal trade agreements, or in research, in social psychology and cultural anthropology in connection with the psychic complex in the minds of so many people that associates imports with sin.

The second reason why I agree with these assumptions is that our present-day farm economists have been trained as individualists to work in individual compartments. Often-times they do not get along any too well with each other so you could not expect them to have much respect for, or many cooperative relationships with, the other branches of the social sciences. Several years ago there developed the idea that in this complicated civilization specific problems should be met by coordinated attack. The idea provided that a project should be developed around a problem so that the economists, sociologists, psychologists, political scientists, biologists, statisticians or whoever they were, composed a team to attack the problem. Thus far I do not see much evidence of either the acceptance of this approach by the economists or much objective evidence that the plan is nearly as workable as it was thought to be ten years ago.

Third, I doubt if farm economists are primarily interested in social philosophy or human behavior outside of economic behavior. These are large fields, it is true. And if we were to psychoanalyze ourselves, I think we would find that somewhere in our lives as individuals, perhaps beginning in our earliest childhood, we developed attitudes and prejudices which became our unconscious social philosophy. They became the framework of our ideas. And I suspect that all of us have at one time or another been guilty of adjusting and adapting these data so that they support our unconscious pattern of ideas, or rationalize our experiences.

Do not misinterpret me and say that I am criticising the farm economists. We are a mixed bunch. There are many among us who are deeply interested in and concerned about social philosophy and agricultural social engineering. But by and large I think we are the product of a very highly specialized system of graduate university training. We are not "generalists." We are more comparable to physiologists, or bacteriologists, than we are to all-around family doctors. If we were to take a poll of his association, a kind of institute of public opinion straw vote, as to whether we wanted to be considered specialists or generalists, I think we would vote five to one to remain specialists. It is for this reason, again, that I am convinced that Dr. Davis postulated a very important proposition and that he is correct in his argument about it.

Let us now turn to his proposed schools for agricultural social engineering.

III

Let us start out with a couple of assumptions: First, that we are living in a very complex civilization and that science has not explained the nature of man and his civilization nearly as adequately as it has explained the nature of the physical and biological world. The approaches are extremely complex and there are no simple, universal solvents anywhere in the social sciences. Furthermore, while economics was the first of the social sciences to get underway, especially in agriculture, it by no means has a monopoly of the field, and if we are to have really effective agricultural social engineering, then we must have commensurate developments in the other fields of social science as they bear on agriculture and rural life.

The second assumption is that these so-called schools of agricultural social engineering must train their students as a new profession, to understand the general framework and the special services of these other disciplines. What other subjects should be set up and developed and should have their field of research and action, parallel with farm economics? Let me list the additional subjects which I think should be set up and developed at once.

First of all, *rural sociology* needs to come to earth. It is coming to earth,—and I think it is making a good deal of progress. Rural education, the grade schools, and the high schools of the country, are very important in molding the pattern of farm thinking. There is abroad in the country a very definite trend of liberalism, a kind of idea that the world can be made over, and that poverty and diseases are not fore-ordained evils. I am not saying whether or not such attitudes are good or bad. I am saying that they are deep-seated among the people under thirty-five, and that the public schools and the prevailing theory of public school education are in no small measure responsible for this attitude.

Political Science in Relation to Agriculture.—Farm political science, if you please, is very important and needs rapid development. There should be departments of agricultural political science in every college of agriculture on the same floor and coordinate with the farm economics departments. So much now goes on and will go on in the future which links agriculture and other elements of the population with government that agricultural social engineers just cannot practice their profession without understanding a great deal about government, politics and political forces, jurisprudence, and public administration.

Social Psychology and Cultural Anthropology are closely related and necessary tools in the schools of agricultural social engineering. Probably the most important and most far-reaching advance that is taking place in the whole realm of the social sciences at present is within these fields. In the past we have looked upon the primitive peoples or peoples other from ourselves as having queer and curious ideas, customs and mythology. But we have not had the power, nor the technique of introspection to see the real nature of our own mythology, our own customs and traditions, our patterns of ideas—in short, our own cultural complex. When we can do this, we will see that we are tribe of mankind actuated and driven by fundamental mainsprings of action, irrational though they may be. We have our agricultural mythology, our symbols, our modes of behavior. We need to know, for instance, more about the ideology that causes so many farmers to associate lowering tariffs with national sin. Economists, as a result of their scientific investigations, may come to agreement as to ideas which if put into operation would improve man's well-being. Why don't the people accept them and put them into operation? The economist shrugs his shoulders. The answer is to be found largely in the fields of cultural anthropology and social psychology.

Social Philosophy.—With the beginning of the present scientific era, philosophy began to recede into the background. It had become static. Either stood in the way of the scientific pattern of thinking or perhaps men of our generation felt that all of man's needs could be fulfilled by the magic of science. There is an unmistakable reversal taking place today in the attitude toward philosophy. And serious thinkers throughout the whole world are again turning their faces toward philosophy in search of new explanations which are beyond the realm of science, new statements of human values, and new statements as to the meaning and significance of the world which modern science has made, new statements of the nature of man as revealed by the social sciences, and the meanings and goals of human life. The social engineers will have to be social philosophers as well as men of action. For the social sciences will give them approximations as to the limitations of men and things in building new cultures. What is good or bad, what are the goals and designs to be sought for by the social engineer, can come only from philosophy and religion. If there can be agreement as to these goals, then the social engineers can begin using as tools the work of economists, sociologists, political scientists, educators, social psychologists and cultural anthropologists.

In conclusion, let me quote again from J. S. Davis:

> In the quasi-religion of social planning, however, I see indications of cravings for the services of real social engineers, who will not only plan and execute but bring constructive plans to successful execution, and of social doctors, who will not only prescribe and treat, but really cure social ills. In the next fifty years, I make bold to prophesy, the profession of social engineering, under some name or other will come to rank with those of medicine, law and engineering; and the development of this profession will prove as fruitful to the progress of social science as developments in engineering and medicine have been to the progress of the natural sciences.

Dr. Davis infers that it will take fifty years to get the new school going. In this statement he ends his flight into the realm of agricultural statesmanship and lands back upon his safe, conservative economic and statistical stamping ground. We need this thing so badly, let us see if it cannot be achieved in much less than fifty years.

Two more comments and then I am through. I am convinced that there is a yearning for this approach among the younger generation of farm economists in particular as well as the younger generation in general. Farmers are already seeking the services that this type of agricultural social engineer could give them. In all three groups many have caught the central theme of twentieth century social science—that there are patterns of human ideas, modes of behavior and institutions that grow out of these patterns, and that as man is psychologically and biologically constituted, there can be innumerable patterns of ideas and innumerable modes of behavior. We have learned that our present patterns of ideas and modes of behavior and institutions are not God-given and not the only ones that we are capable of having. Such being the case, it rests principally with the philosophers, who deal with human values, to tell us what are good patterns of ideas so that desirable modes of human behavior will grow out of them and give the maximum of value to human beings. I am impressed by the large number of young men in the twenties and thirties who have told me in the last three or four years that looking back upon their graduate training, they feel that it was too narrow, and that it did not lead them to an adequate understanding of the ends and values of human life.

Now, let me voice a New Year's wish. When you go home, get volume 32 of the *Journal of the American Statistical Association*, turn to page two, read pages two, three and four, and see if you can't get religion, as I have, out of Joe Davis' presidential address to the staid, old, cold-blooded Statistical Association.

THE ECONOMICS OF THE EVER-NORMAL GRANARY

JOSEPH S. DAVIS
FOOD RESEARCH INSTITUTE, STANFORD UNIVERSITY

The "ever-normal granary" was a favorite notion with Henry A. Wallace for at least 10 to 15 years before he entered the Roosevelt Cabinet. As early as 1926 he coined the phrase, taken from the Chinese. From a bright idea to play with, it increasingly became a central element in his agro-political thinking. The 1934 drought impelled him, as Secretary of Agriculture, to bring it repeatedly before farmers and the general public, inviting serious discussion. Soon he urged its outright incorporation in our agricultural policy. Congress responded in part in August 1935, but the Supreme Court decision early in 1936 interposed a severe check. This year, "with profound conviction," the Secretary has vigorously pressed the ever-normal granary as "the heart" of proposed "permanent" legislation. In some form not yet clear, provision for it will presumably be included in the new Agricultural Adjustment Act. If the scheme in practice should measure up to the high expectations held out, the lion's share of the credit will belong to Secretary Wallace, its persistent sponsor and outstanding spokesman.

Because the proposal is primarily his brain-child, it is peculiarly difficult to discuss it critically without seeming objectionably personal. Inside or outside the Department of Agriculture, anyone who subjects to careful scrutiny the idea, the arguments, the plans, runs grave risk of stepping on the Secretary's toes. I cannot avoid doing this. The forthright appraisal you expect of me will contain much that he will not like.

Now, I assure you, nothing approaching rancor or disrespect inspires my words. On the contrary, it pains me to cause Mr. Wallace pain. Ten years ago, at the Williamstown Institute of Politics, he and I occupied neighboring dormitory rooms for six weeks, took part in each other's round tables, chatted between sessions. My cordial friendship for him has not wavered since, regardless of the degree to which it is reciprocated. I admire and honor him for much that he is, and says, and does. More than he may realize, I agree with him. Yet on this topic and some others, when I cannot endorse his reasoning or share his convictions, I must sometimes speak out even though I offend him. He said last June: " . . . The farmers and consumers of the United States would like to know the enemies of the ever-normal granary plan—the real enemies who hide behind false whiskers and spread false propaganda."[1] With-

[1] Radio address, June 1, 1937.

out whiskers, false or real, I stand up again to be counted against the proposal,[2] though I do not call myself an "enemy" of anything or anybody. So far as I am aware, I serve no special interests, and have only at stake such reputation as I may have for seeing straight.

For other reasons the topic assigned me is hard to deal with briefly, especially at this juncture. The broad idea, long stated only in general terms, is only now emerging into something approaching concrete form; and Congress will doubtless leave considerable latitude to the Secretary of Agriculture. It is difficult to make a "projective analysis" without appearing to predict the unpredictable. I must concentrate mainly on the idea, the arguments on behalf of the "principle," and how some such scheme may be expected to work with one or two commodities. Even so, it is hard to disentangle the economics from the "politiconomics" of the ever-normal granary. By politiconomics I mean a spurious imitation of economics put forward, for broadly political purposes, as if it were equivalent to the real article. "Parity price," "parity income," "fair exchange value," "fair share of the national income," are typical politiconomic concepts.

The Proposed Scheme in Outline

Secretary Wallace has defined the ever-normal granary as "a definite system whereby supplies following years of drought or other great calamity would be large enough to take care of the consumer, but under which the farmer would not be unduly penalized in years of favorable weather."[3] In its evolved forms, several overlapping elements are involved: (1) government-financed storage of certain staple farm products, in substantial volume; (2) commodity loans to growers in years of large crops, to hold price-depressing influences in check; (3) releasing portions of these stocks under certain conditions, when Nature curtails the crop; (4) production "controls," "voluntary" or compulsory according to conditions, designed to prevent the stored surplus from growing too large; and, if occasion arises, (5) marketing quotas to replace or supplement production restraints. Essentially what is contemplated is a linked system of stored reserves, plus crop restrictions and/or marketing restrictions.

The term "ever-normal granary," apparently retained for its intended appeal to consumers, is obviously inappropriate for this

[2] Administration spokesmen have chosen to ignore the considerations on the ever-normal granary that our Brookings Institution studies led us to put into print between May 1935 and February 1937. These were honest, seriously considered utterances of professional students such as are called experts if one agrees with them.

[3] *The Agricultural Situation*, March 1937, p. 9.

whole system; but one cannot properly consider the scheme of reserves apart from the restraints on production and marketing that are proposed to be coupled with it.[4] Secretary Wallace tries to bring production restriction under the same term by calling it "storing the grain in the soil" instead of "storing it in the bin"; but this, of course, is just politiconomics. What is left stored in the soil when a "soil-depleting" crop is not planted is not grain, but only a certain amount of soil moisture and fertility which, under some conditions but by no means universally or inevitably, will give higher yields when the land is again planted to the crop.

Wheat, corn, rice, cotton, and tobacco are most commonly proposed as the commodities to which the system shall be applied. Here I can deal only with wheat and corn. These loom up largest in the minds of the advocates. Moreover, many of the arguments for the linked system, as contrasted with production control as such, do not apply at all to rice, cotton, and tobacco. In this country rice is a very minor foodstuff, and a "basic agricultural commodity" only so far as the fiat of Congress can make it so. Cotton and tobacco, of course, are not foodstuffs. Tobacco stocks are customarily very large in relation to annual production and consumption, and persistent trade incentives keep them large. Cotton, even when compulsory control did its utmost, has been produced so greatly in excess of domestic consumption that the need for special reserve stocks is too remote to deserve discussion. If I refer to certain experience under the AAA cotton program, it is only for the light that it throws on the prospective working of an every-normal granary with wheat and corn.

Spokesmen for the proposed system paint a rosy picture of what it would accomplish: essential assurance of ample food supplies for consumers, at "fair prices" through thick and thin; "ever-normal," stable supplies and prices of food, feed, and fiber crops, to the advantage of consumers, processors, dairymen and livestock producers, labor, and indeed all interests except speculators; and a stabilizing influence in the whole national economy. Sometimes these claims are qualified, but often they are not.[5] Farmer spokesmen, moreover, ostensibly expect it to achieve the objectives of "parity prices" for "normal" supplies of the five specified farm products[6] and "parity income" for the farmer.

[4] An AAA official has criticised my earlier published discussions on the ground that they tended to mislead readers in this respect.

[5] Only rarely has Secretary Wallace openly admitted, as in an address on Sept. 10, 1936, that "We are not even certain that we have found a method to prevent the recurrence of alternate glut and scarcity which make our farm income charts look like a series of high hills and deep valleys. We think we have but we cannot yet be sure."

[6] For example, Earl C. Smith, Vice-President of the American Farm Bureau Federation, testifying before the House Committee on Agriculture last May, expressed the conviction that the provisions of the draft bill then under consideration "would keep the price level effectively confined . . . between 10 per cent below the parity and 10 per cent above parity."

If this roseate picture were really true, and if the cost were not excessive, the grafting of the system onto our permanent national policy would be opposed only by fools or knaves or those whose personal interests were threatened. I accept classification in none of these categories, and I venture to assert that the picture is far from true. Many of the official statements reflect extraordinary rashness or gullibility. Of course, I cannot predict just how the ever-normal granary would work if applied, but neither can Secretary Wallace, nor any or all of his staff. Incalculable influences would be exerted by weather, business reactions, public opinion, and public policies at home and abroad; by choices of millions of individual American farmers; and by decisions of those administering the program. But one can appraise various arguments and consider in advance various likely possibilities.

Consumer Protection

A whole series of arguments for the ever-normal granary system are directed toward inducing consumers to believe it essential to protect them against food shortage and/or oppressive food prices. Practically none of these "politiconomic" arguments rests on a solid economic foundation.

In the fall of 1934 Secretary Wallace interpreted "the lesson of the cycle of the generations" thus: "There probably will be serious food shortage over the entire world beginning sometime during the next ten or fifteen years, and . . . the shortage once definitely started will continue for a number of years, with an intensity varying . . . with the weather."[7] Conceivably this prophecy was truly inspired. I will merely say that extensive and prolonged research on world food problems, past and present, affords no basis for anything like it; that, on the contrary, every decade sees increasing economic assurance against world food shortages due to adverse weather or any cause but devastating general war; and that our new agricultural policy correctly implies that, in this country, prospective abundance of wheat and corn, not prospective national scarcity, presents the difficult problems to those with exaggerated ideas of "fair prices."

More specifically, the succession of poor crops in North America from 1933 through 1936 has been used as a basis for urging the consumer's need of ever-normal-granary protection. Secretary Wallace has presented the scheme as "a better mechanism to level out the years of feast and famine."[8] He has said: "The American farmer owes a sacred duty to the American consumer to see that

[7] *New Frontiers* (New York, 1934), p. 232.

[8] June 1, 1937.

he is adequately fed no matter how severe the drought."[9] Dr. A. G. Black said recently: " . . . the first and foremost provision of any comprehensive program for meeting future problems of surpluses, of falling or fluctuating prices, or of drought, will be to assure an adequate food supply for the Nation."[10] It is ostensibly on such grounds that Congress is asked to provide for building up government-financed supplementary grain reserves, such that after good crops there will be minimum total carryovers of perhaps 200 million bushels of wheat and 350 million bushels of corn. "Without such stored quantities to call upon in time of shortage," said Dr. Black, "prices tend to rise to heights which tempt farmers to plant to excess of needs in succeeding years."[11] Secretary Wallace said last May: "Since the droughts of 1934 and 1936 the consumers have been heavily penalized by the lack of protection which such a plan as the ever-normal granary would afford."[12] Again he said: "To keep agriculture producing on a basis that will afford ample assurance of national food supply it is necessary that farmers shall receiver their fair share of the nation's income."[13]

Hardly one of these statements bears analysis. Even if farmers have not received for years what Secretary Wallace computes as their "fair share of the national income,"[14] there is no sign of their voluntarily failing to produce abundant food supplies for the nation. Whether individual consumers will be adequately fed is quite another matter. The long campaign for surplus-control measures testifies unmistakably to the absence of danger of food shortage resulting from farmers' actions or inaction. Prices well below computed parities have induced farmers to plant acreages that can be expected, on the average, to yield far more wheat and corn than the nation can readily use. At any levels thus far suggested, the ever-normal granary carryovers would be quite inadequate to "level out" such corn crop failures as those of 1934 and 1936, or to insure us against four short crops of wheat in a row as in 1933–36. Even the so-called "towering surpluses" that were used as arguments for production control in 1933—in the case of wheat nearly double the proposed ever-normal carryovers—did not suffice to prevent commercial imports of wheat and corn over high duties. Yet prices did not rise enough to lead to the very simple expedient of temporarily lowering those duties.

The farmer spokesmen's idea of safeguarding consumers appeared in a provision in the Flannagan bill (H.R. 7577). Release

[9] Aug. 19, 1936, p. 5.
[10] Address at Frederick, Md., Aug. 11, 1937 (197–238), p. 7.
[11] *Ibid.*, p. 8.
[12] House Committee Hearings, Series C, p. 137.
[13] *Ibid.*, p. 136.
[14] Secretary Wallace was conservative in saying at Caldwell, Idaho, on Aug. 4, 1937: "Scarcely anyone denies that farmers ought to have their fair share in the National income." No one wants farmers to be underpaid, but many would deny the economic validity of the official definition of what their "fair share" is.

of wheat and corn stocks and other relaxations were authorized when the farm price reached 10 per cent above parity. Yet even in 1936–37, after three short world wheat crops, the weighted average farm price of wheat in the United States was only 88 per cent of the official parity, and at its peak in April, 1937 the monthly price hardly reached 8 per cent above parity. Need I comment on the unrealistic character of such provisions?

Crop-wise, the four years 1933–36 were unprecedented in our history. Decades or centuries may elapse before this experience is repeated. Yet though we utilized only a fraction of our available alternatives, there was nothing approaching national food shortage, to say nothing of famine, and only limited complaints of high prices. These disastrous droughts were totally unpredictable. Ironically enough, the most drastic crop restrictions were effective in 1934, the worst drought year in our history; and so little foreseen was the corn crop failure in 1936 that the Secretary of Agriculture made no attempt to build up reserves from the good crop of 1935, as the corn loan of 1933 had accidentally done two years earlier.

If time permitted, I would pay my respects to the examples Secretary Wallace is fond of using—the biblical tale of Joseph in prehistoric Egypt and the asserted use of an ever-normal granary in China "for over 1400 years." Even if one accepts these stories at their face value, they have not the slightest significant bearing on the current problem. I will not insult your intelligence by laboring the point that the food position in ancient Egypt and in medieval China must have been totally different from what it is in twentieth century America. Perhaps there are nations today in which "security reserves" of food may prudently be accumulated. Some recent experiences, as with Japanese rice control since 1921, yield no support; for there is no evidence that consumer security in Japan has been significantly enhanced thereby, and it is amply clear that it did not save Japanese farmers from extreme distress. Sir Arthur Salter has recently urged that the British government take steps to build up, as a defense measure, special food stocks equivalent to a year's consumption of wheat.[15] But again our position in this respect is so vastly different from Great Britain's that I need not discuss the lack of parallel.

In short, the arguments for the ever-normal granary as a protection to the American consumer are unworthy of their spokesmen. Such protection is not needed, even against an unpredictable succession of bad seasons. Recent experience gives no reason to

[15] *Economist* (London), Oct. 2, 1937, pp. 12–16.

expect that, under such circumstances, the scheme would be so operated as to improve the consumers' position significantly. The politiconomic character of the argument comes out only in rare cases, when it is quietly said that the American public may not stand for crop-restriction programs unless these are accompanied by specific machinery to insure consumers against shortage or high prices. Important objectives of such restrictions are price levels much above what consumers would otherwise have to pay and farmers would be willing to continue to accept. On behalf of consumers it is notoriously easy to shed "crocodile tears."

In return for the so-called "protection" already discussed, the consumer is told that he "through the Government owes it to the farmer to see that surpluses accumulated through the years of good weather do not ruin the farmer."[16] The mechanism usually contemplated includes two parts: first, loans to wheat and corn growers to encourage them to hold over their grain, and under some circumstances prohibition of sale and/or use of amounts exceeding specified quotas; and second, voluntary or (under certain conditions) compulsory restrictions in plantings.

The Loan Policy

Let us consider first the loan scheme. Secretary Wallace seeks to have certain reserves of wheat built up under a crop-yield insurance program, in which premiums and losses would be settled for in wheat. He recognizes the possibility of accumulating other stocks of wheat and corn through government purchase, but sees dangers in this from political pressure. The bulk of the ever-normal granary reserves would be grower-owned but government-financed, presumably under regulations broadly similar to those applied in the corn loans since 1933. While the corn collateral would be mainly stored on growers' farms, the wheat collateral would probably be stored mainly in public elevators or warehouses, much as under the cotton loans. Presumably the loans would be "without recourse," that is, any gain from price advance would go to the borrowers, any loss fall on the federal Treasury.[17] Nominally, at least, the collateral would be under government control, but experience under the cotton loans shows that such control is by no means untrammelled.

There would be no difficulty in thus building up any reserves of the magnitude contemplated, except in years of very low yields.

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[16] Secretary Wallace, address of Aug. 19, 1936, p. 5.

[17] Secretary Wallace resents the fact that farmers do not always share in a price advance that occurs during the season. The loan feature of the ever-normal granary plan is calculated to permit borrowing farmers to reap speculative gains while the government stands any speculative losses. For the government routinely to underwrite such farmer speculations would seem to require extraordinary justification.

The crucial instrument would be the amount loaned per bushel. Put low enough, as on corn in 1934–35 and 1935–36, it will attract no significant borrowing. At another level, as on corn in 1933–34 and cotton in 1934–35, large amounts will be borrowed on. Not the specific loan rate, but its relation to changing current prices, will determine whether it is high or low. This relation may change during the season. Some thought the 12-cent rate on cotton conservative in August 1934, but it proved excessive. The 9-cent rate may have seemed likewise conservative in August 1937, but it has proved still more excessive. If the loan rate is put too high, whatever the intention when it was fixed, it leads to unexpected and potentially embarrassing accumulations and other undesired economic consequences.

Unfortunately, there is no reliable basis for setting a loan rate at the "right" figure. One important factor, the size of the next crop, is essentially unpredictable, regardless of the presence or absence of crop restrictions, voluntary or compulsory. Only unforeseeable drought in 1934 made the corn loan of 1933–34 a successful gamble. Even the size of the current crop may not be known within sufficiently narrow limits when the loan rate is set. As an extreme example, this year's cotton crop is now estimated 20 per cent or 3,153,000 bales above the official estimate standing when the 9-cent loan rate was fixed late in August. The extent of the foreign demand cannot be accurately appraised by the time a loan rate must be fixed; this has been illustrated in the world wheat trade for several recent years. Many other instances might be cited. The statistical task is beyond all the experts that can be assembled, and from all that we can see it will remain so.

Moreover, terrific pressure from growers and their political spokesmen will usually be exerted to fix the loan rate too high, and only within limits can even an enlightened Administration resist this pressure. This has been past experience, and there is every reason to expect it in future. Farm leaders have done their best to get parity price tied into the present bill, in such a way as to limit official discretion. If the loan rate is somehow based on the uneconomic parity price, there are good prospects that it too will be uneconomically high.

I must specify some of the undesirable economic consequences of fixing the loan rate too high. The extent of this effect depends on many factors, but particularly on how excessive the loan rate proves. Too high a loan rate checks the normal flow of supplies into export, into low-price uses at home, and to some extent even into ordinary domestic use. Thus it interferes with final disposition

of abundant supplies, and needlessly intensifies the surplus problem. Large stocks acquired under loan arrangements are extremely difficult to dispose of, unless the next crop is short. In the case of wheat, huge reserves would tend to congest the physical channels of trade, raising the margin between farm and market prices. Carrying large stocks is expensive, and the loan volume and potential Treasury losses must be reckoned as financial factors of real magnitude. Heavy stocks lead directly to demands for drastic restraints on production and marketing, and under some plans under consideration would automatically force these into effect. Even so, there would be no insurance against a surplus crop following a surplus crop, if Nature counteracted compulsory restriction of acreage with a high yield.

The Farm Board experience with its wheat and cotton loans, and the AAA experience with the cotton loans of 1934–35 and the present season, afford supporting testimony on several of these points.[18] We should have had more by this time if Nature had been less niggardly in 1933–36.

Among the potent defects in the plan that I can barely touch upon is the horizontal character of the loan rate. Under the corn and cotton loans, the rate has been uniform regardless of location. To facilitate administration, the whole complex but natural geographic price structure is ignored. Especially with corn and wheat, such a procedure interferes with the commercial flow of the grain and tends to confer the greatest financial benefit on those economically farthest from the market. Even if attempts are made to overcome this defect, the plan almost necessarily involves for a season a fixed loan-rate structure, by type, grade, and location, more or less completely supplanting the continually adjusting price structure that normally facilitates the most effective and economic disposition of the composite supply. In this respect as in others, the present economic system is by no means perfect, but the proposed substitute has these serious imperfections.

Stability of Supplies and Prices

A plausible argument for the ever-normal granary system is that it would "stabilize" domestic supplies of the crops concerned, and their prices, or at least make them much more stable from year to year than they would be without it. This is theoretically possible as to supplies in a special sense.

Theoretically, a considerable part of any big crop would be held

[18] Congress literally gave away much of the Farm Board's "stabilization" stocks of wheat and cotton; and the AAA had left 1.4 million bales of 1934–35 loan cotton when the bumper crop of 1937 was harvested.

off the market, the next crop reduced by restrictions either on acreage directly or through marketings indirectly, and a short crop compensated by release of stocks. In practice, however, large and small crops do not regularly alternate, even compulsory crop restrictions do not constitute production control,[19] and many factors would prevent the nice compensation anticipated through accumulation and release of stocks. To meet the unpredictable risk of very short crops, or two or more in succession, would require average carryovers so huge as to be almost always *abnormal*. If such were carried, the *percentage* fluctuations in marketable supplies could be lessened, but only at extremely heavy cost. Fluctuations in total supplies would continue, probably on a higher level; the price interference contemplated would limit the flow into export and less important domestic uses which ordinarily absorb considerable fractions of large crops; and year-to-year fluctuations in total supplies might be greater than ever.

The Agricultural Adjustment Act of 1933 was passed under the shadow of what then seemed enormous stocks of wheat and cotton. In retrospect, under ever-normal granary principles, the wheat stocks were too small, restriction of wheat acreage for harvest in 1934 to 1936 was a mistake, and some stimulus should have been given to wheat production in order to obviate importations and to prevent the carryover from falling as low as it did in 1937.

Contrary to official arguments, there is no prospect that wide swings in production would be avoided under the scheme. In the main, variations in production have resulted and will continue to result from unpredictable variations in acreage abandonment and yield per acre due to natural causes. But crop restrictions and relaxations may intensify rather than offset such fluctuations. Certainly the downswing from 1933 to 1934 was accentuated in some degree by crop restrictions imposed on wheat, corn, and cotton, such as might be imposed under the new plan. The great upswing in wheat, corn, and cotton production in 1937 took place with the Secretary's blessing, and might well have occurred if the proposed system had been in operation.

Whatever the specific form of the completed act, Secretary Wallace's idea has been that compulsory restriction of marketings

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[19] In respect to what is miscalled "production control," the AAA has faced and again would face certain dilemmas. Relative ease of administration, and apparent fairness, point to the use of historical bases from which required contraction may be figured. Yet diversity of circumstances and sound economic adjustment to changing conditions speak in favor of much more numerous, diverse, and flexible bases. In 1933–35 the AAA employed mainly historical bases, but was preparing to introduce various flexible devices. The new plan may call for far more detailed and specific fixation of bases. Conceivably, at huge expense for administration, this might avoid the frying pan of the old scheme, but if it did so it could hardly escape the fire. Complaints of unfairness and discrimination could not be avoided, and efforts to minimize such complaints would render the degree of voluntary production control much less than under the former system, when results from such measures were quantitatively small.

and production should be invoked only when the ever-normal granary was "overflowing." With figures such as have been used, however, it is easy to show that such resort might easily come early, instead of being long deferred or perhaps never resorted to. Many regarded the "stabilization" provisions of the Agricultural Marketing Act of 1929 as a last resort, but they were invoked in the first year of the Farm Board. Unless specifically prohibited under the new law, compulsory procedures might be applied to wheat and corn in 1938–39 if yields were moderately high.

The existence of a huge average carryover, which the system would surely tend to bring, obviously means heavy storage costs. Carrying even an extra 200 million bushels of wheat would probably cost at least $30,000,000 a year. This might be welcomed by private owners of commercial grain storage facilities, which are now considerably overbuilt so far as prospective economic requirements for the next decade are concerned. But it could easily entail sinking still more capital in construction, on an insecure politico-economic basis, or else threaten growers with the risk of congested facilities at various times.

The maintenance of huge stocks under government control, subject to official decisions as to release of stocks, loan rates, and production restraints, and subject also to threat of breakdown of the system, implies continuous obstacles to the commercial movement of the products, and the constant presence of political factors in the business decisions of growers, middlemen, and processors. What this can signify, we know in part from Farm Board experience with wheat and cotton, and from AAA experience with cotton; but the magnitude cannot be fully appreciated on the basis of those experiences.

Far more important from the viewpoint of its sponsors, a system that required average carryovers large enough to insure something approaching stability of marketable supplies would be one in which commercial prices would average far below what growers consider normal, even if they openly recognize parity prices as super-normal. Whatever the procedure by which huge stocks are "kept off the market," they count as part of the total supply that helps to determine market price. Provision for production restraints somewhat modifies but does not nullify this important economic fact. So long as the law and the program are subject to revision, uncertainties as to release of stocks increase the burden of such stocks on the market. The surest way to insure persistently unsatisfactory market prices is to have persistently large supplies. If such is the outcome, the disillusionment of the farmers can be partially met

by more or less disguised subsidies, called loans, crop-adjustment payments, parity payments, or what not; but this means that the growers' income depends more on their political influence than on their economic contribution to society. Witness the cotton growers' situation this year.

If my reasoning as to the prospective working of the scheme is at all reliable, its chief contribution to price stabilization would come through limiting price advances. Disturbances to price stability, however, come from many sources, and not merely from fluctuations in domestic production, or crop plus carryover, as Secretary Wallace usually seems to imply. Several of the greatest advances in wheat prices in the past 50 years, notably those of 1897–98, 1914–15, and 1924–25, occurred when the United States had a large crop. Some of the notable declines in wheat prices have not been primarily due to big crops here. The size of crops abroad, particularly in Canada, Argentina, and Europe, is important in the case of wheat. For corn, the size of the Argentine and European crops is important. The level of business activity is vital, especially in the case of cotton, as well as the size of cotton crops abroad. Currency influences, the scope of minor wars, the threats of larger wars, and ocean shipping rates, all figure; and there are many other factors. Genuine stabilization of prices of individual commodities is an impractical goal except in a completely managed economy, and a highly questionable ideal.

Stabilization of farm income is still another matter. As I envisage the operation of the contemplated system, it would reduce in some degree the compensating effect of higher prices with shorter crops, and vice versa, imperfect though such compensation often is. But this would make for larger fluctuations in farm returns from fluctuating crops. Destabilization of farm income would be dearly bought by moderating year-to-year price swings. Under the circumstances, crop returns could not be expected to yield higher and more stable farm income from which it is argued that processors, labor, and consumers would reap important advantages.

Concluding Observations

I must pass over various important questions. Such are the cost of the scheme, which no one can now estimate; the feasibility of enforcing compulsory provisions and penalties; the difficulties to be faced in handling out-of-position stocks, of special import with corn; and the position in case financial limitations should prevent increasing government-financed reserves or force liquidation of accumulated stocks.

My own considered conclusions are that, whatever its real intent, the ever-normal granary system is essentially a scheme for far-reaching government regulation of farm production and marketing, at great expense to taxpayers and probably consumers. It would fail of its major avowed objectives. In operation it would sometimes seem successful, sometimes a great fiasco. It would probably create more emergencies than it would forestall. It would bring less weal than woe.

Secretary Wallace has said: "I know of no interests which could be injured by the ever-normal granary except the interests of speculators in farm products."[20] I am not so sure that speculative interests would be injured, but others would be. Farmers would probably be helped little by increased price stability, and hurt both by a lower level of prices than would otherwise prevail, and by regulation of their production and marketing, except as these were rendered palatable by government subsidies. Consumers would probably be hurt, not so much in consequence of farm prices higher than would otherwise exist, but by processing or sales taxes imposed to relieve other taxpayers. Merchants and processors would be injured by added uncertainties, arising from official decisions largely made in ignorance of their business significance, from court decisions and delays incident thereto, and from changes in the political wind.

From the standpoint of American farmers, the most serious objection is that, without realizing it in advance, they would be "selling their birthright for a mess of pottage." Except perhaps at the outset, their maximum gains would gravely disappoint them. If it did not break down first, the system would lead, not late but fairly soon, to compulsory regulation of acreage, production, and marketing of the specified crops and probably others not yet named. The substantial degree of freedom farmers have truly enjoyed, and deeply prized, would be replaced by a large measure of government fiat. Perhaps they would have chances to vote on its application, but only on referenda framed in Washington, after "educational" campaigns dominated by Washington propaganda. True also, the pills would be sugar-coated with government payments, which farmers might be persuaded were only their due but which many would recognize as uneconomic and wrong in principle, even if they could not give them an appropriate label.

I shall doubtless be criticized for being destructive rather than constructive; yet when blundering policy-building is going on, destructive criticism is the most constructive act, even though it

[20] House Committee Hearings, p. 137.

be ignored. There is economic justification for various developments in our agricultural policy. The soil-conservation program has a core of soundness and is worthy of perfecting. Crop-yield insurance merits limited and careful government experimentation. Other provisions for meeting local or regional farm disasters should be put on a permanent basis. The problem of how best to meet general extreme emergencies, when they come, should be faced well in advance, in the light of both experience and constructive policy research. But there is no economic warrant for fixing in our permanent agricultural policy an uneconomic doctrine of parity price, large-scale subsidies to farmers, regimentation of farm production and marketing, and huge government stores of wheat, corn, and cotton. Though presented as a permanent policy, I predict that the ever-normal granary system—like the ill-considered, ill-starred Agricultural Marketing Act of 1929—would not work well enough to endure long.

Discussion by Mordecai Ezekiel

United States Department of Agriculture

On many points I agree with what Dr. Davis has said. We recognize many of the difficulties and dangers he points out, and are searching for ways to deal with them. Of these points on which I agree, three are especially significant:

1. Maintenance of our domestic price above the world level in years of bumper yields may tend to check exports, encourage foreign production, and narrow our export outlets in subsequent years. This difficulty may call for offsetting export subsidies in some years, such as first experimented with by the Farm Board and later developed by the AAA under Section 32, or for some other variation of the two-price system. Effective international agreements to share the world market, such as tried originally for wheat (and temporarily made unnecessary by the succession of world-wide short crops), and such as once proposed by Egypt for cotton would be another possible alternative. The sugar and rubber international agreements, now in effective operation, illustrate the possibilities of this method.

2. The flat crop loan, without geographical differentials, certainly tends to create difficulties of the sort Dr. Davis outlines. Perhaps some system can be developed to vary the loan rates geographically, either by some sort of basing point structure such as used by the Farm Board, or else by varying the loan rate by states acording to the distribution of the crop by states in individual years. Some technique of this sort is needed to hold the upsetting influence of loans on internal crop movements to a minimum.

3. Political pressures may at times force the making of loans higher than is economically desirable from the long-pull view; or inadequate information may result in wrong loan policies. These are certainly dangers to be admitted and faced. Frank presentation of the facts, to farmers and legislators, and widespread and candid discussion of the possible future

consequences of given loan policies, may help withstand the political and other pressures, as the AAA has already demonstrated in its recent cotton loans.

When it comes to Dr. Davis' further conclusion, that the ever-normal granary system will result in such an accumulation of surplus supplies as to depress our domestic price, I cannot agree. Here I believe he makes the error of using *laissez faire* economic reasoning under conditions where its assumptions are no longer fulfilled. The crop loan in years of bumper crops or heavy supplies is itself an integral part of the ever-normal granary system; supplies cannot depress the market to competitive levels while loans are there to support it.

The grave difficulties of putting the ever-normal granary system into action can be solved if we recognize and face them. But the real question is, is the job worth the doing? Will the gains from it be worth the cost?

Here I will confine my comments, as Dr. Davis has done, to corn and cotton. Wheat is in fact almost a minor crop, contributing less than 10 per cent of farmers' cash income. The problem of the ever-normal granary for wheat is closely connected with that of wheat crop-yield insurance. With the premiums and insurance both paid in kind, the two tend to merge into one, so I will leave wheat aside as requiring special treatment along the crop insurance lines presented in Mr. Green's paper.

When it comes to corn, Dr. Davis makes a serious oversight in discussing the ever-normal granary solely on a crop and crop-value basis. Farmers sell relatively little corn for cash; it produces only about 3 per cent of their cash income. But if we add in the value of corn converted into meat and sold as beef and hogs, we find that corn is responsible for more than one-quarter of the aggregate income of American farmers, and it is this livestock supply and income that the ever-normal granary for corn is aimed at leveling out.

Variations in corn production in the past have been reflected in subsequent variations in hog production, and, to a lesser degree, in beef production. These facts are familiar to every student of the corn-hog cycle. From the time the first careful studies of the corn-hog cycle were made by Henry Wallace, the recommendation was for farmers to store bumper corn crops on their farm, and to keep hog production level, instead of varying hog production up and down with corn yields. But relatively few farmers have been in position to follow this advice. Thus, between 1924 and 1926—in years of generally prosperous business—hog slaughter fell from a level of 54 million a year to one of about 41 million, while prices advanced from seven and one-half dollars to over twelve, with a consequent great increase in the value of the hogs marketed during the hog year.[1]

The excessive fluctuations in the production of hogs and beef cattle result in the maintenance of excess capacity, in farmers' breeding pens and feed lots, in concentration yards and freight cars, in stockyards, and in packing plants, which is used to the full only at infrequent

[1] These data are for the "hog year" beginning on Oct. 1. The exact data are as follows:

Year beginning Oct. 1	Hogs slaughtered under fed. insp. Thousands	Av. price per lb. Dol. per cwt.	Aggregate value Million dollars
1923	53,706	7.41	890
1925	41,150	12.29	1,201

See *Livestock Meats and Wool Market Statistics and Related Data*, compiled by Edna M. Jordan, Bur. of Agr. Ec. U.S. Dept. Agr. April, 1937, p. 169.

intervals. Also, it results in uneconomic changes in the weight of hogs, with relatively excessive production of lard in periods of high corn-hog ratios. If livestock and meat production could be more nearly stabilized, that would make the reserve stand-by equipment unnecessary, and eventually, under competition in selling, should materially reduce livestock marketing costs. If the ever-normal granary for corn can thus help stabilize meat supplies and reduce marketing costs, it will benefit both producers and consumers.[2]

I quite agree with Dr. Davis that from 1933 to 1936, AAA policies as a whole did not work solely toward stabilized supplies. During that period production adjustment was the dominant idea, and crop loans were used only sparingly and not in line with a consistent ever-normal granary policy. The difficulties of operating production control on hogs led to a search for methods which would put less onerous pressure on farmers, and this was one of the steps in the evolution of the ever-normal granary idea. The ever-normal granary scheme for corn, operating on hog producers through the indirect suasion of corn and hog prices, rather than through the direct interventions of hog contracts, may work toward the end of stability in livestock production and prices with less tendency toward "regimentation."

In conclusion, may I make one other comment on the paper. We do not yet have "Schools of Social Engineering," such as Dr. Davis proposed a year ago,[3] but we do have men, such as Henry A. Wallace, who in the stress of participation in political life, have become "social engineers," and as such are helping create and mould the economic institutions of the future. As Dr. Davis pointed out a year ago, the job of the social engineer is different from that of the economist. The social engineer cannot argue for his ideas with the calm detachment, and with the nice balancing of pros and cons in his statements, that the economist uses in his classroom discussions. For that reason it is rather unfair for Dr. Davis, as he has done in this paper, to select statements from papers in the field of "politiconomics" and then interpret them as if they were prepared as calm economic appraisals. If only calm economic appraisals were used by the social engineer, he would never sway voters or legislators to carry into actions the things he sees are needed.

Along the same line, let me comment on the relative cost of storing versus importing. It is probably correct, as Dr. Davis concludes, that it would be cheaper to import wheat in years of short crops than to store reserves over from years of large crops. Yet the fact remains in the world of "politiconomics" in which the social engineer must operate, that it is a major injury to import five million bushels of wheat one year that no amount of subsequent exportation can wipe out, and that the sin of importing one million pounds of Polish hams cannot be expiated by the exportation of tens of millions of pounds of lard and bacon.

The social engineer, opera ng in the world not only of prices and production but of voters and legislators, must have a cool head to be sure his economic proposals are right and will work; but he must also have a warm heart to present his proposals in such a way they will secure support and be carried into action.

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[2] After this discussion was presented orally, my attention was called to a recent research bulletin which comes to this same conclusion after a careful examination of the pertinent facts. See "Stabilizing Corn Supplies by Storage," Bulletin 368, Agricultural Experiment Station, Ames, Iowa, by Geoffrey Shepherd and Walter Wilcox.

[3] Joseph I. Davis, "Statistics and Social Engineering," *Journal Am. Stat. Assn.*, Vol. XXXII, pp. 1–7, March, 1937.

OBJECTIVES IN NATIONAL AGRICULTURAL POLICY

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I

Agricultural problems in the United States since the World War have evoked wide discussion and debate among the agricultural economists. Along with others, H. C. Taylor provided much of the impetus for more recent ideas and programs in the field. A statement he made at the annual meeting of this Association in December, 1920, indicates something of the spirit he instilled into the study of agricultural problems and the formulation of constructive programs to meet them. I quote three sentences from his statement:

> Never has there been a time when the right solution of farm economic questions was more important than today. . . . It is the duty of the men of the American Farm Economic Association to take the lead in the solution of these problems. If we sit by calmly studying the phenomena in a cold scientific way and fail to aid those who are demanding action, we will deserve to be called sterile.

II

Two basic issues constantly reappear in the writings and discussions. First, what shall be the role of the government with respect to agriculture? This, of course, involves the whole question of the *broad objectives* of policy. Second, what are the most APPROPRIATE METHODS for attaining these objectives? The concept of appropriateness may be broken down into two questions. What methods will be most effective for attaining the agreed-upon objectives? Are these methods compatible with our democratic institutions and processes?

There are a number of current objectives of national agricultural policy which have been recognized in effective or pending legislation and administrative activities of the Federal Government. They have been generally accepted not only by most economists but by farmers and the general public. These objectives may be presented somewhat categorically:

First, a fair share of the national income for agriculture. Undoubtedly there is disagreement upon its precise measurement. Still, the idea of securing to the average farmer as much purchasing power relative to that of the average non-farmer as obtained in a more normal period is a definite and tenable objective.

Second, conservation of the nation's soil resources. The need for soil conservation is so widely acknowledged at present that elaboration is unnecessary.

Third, adequate supplies of food and fiber for consumers. This concept is embodied in the current efforts to provide for stability of agricultural supplies and prices from year to year. It also embodies a larger concept of the needs of consumers; that is, the desirability of adjusting market supplies to trends in consumption, good dietary principles, and a rising standard of living.

Fourth, maintaining and reopening export markets for farm products. This involves conscious negotiation with foreign countries through reciprocal trade agreements. It also involves the maintenance of supplies of farm products large enough to hold our present position in foreign markets and to strengthen it insofar as world conditions improve and foreign demand increases. In such commodities as sugar and wheat this has also involved cooperation with foreign countries for adjustment of production and for stabilizing international trade in these commodities.

Fifth, encouragement of the family-sized farm. This carries with it an implicit assumption that, entirely aside from the question of relative efficiency, the farm family is a superior source of social stability and vitality. This is an old objective, but it is still prominent in people's minds, as evidenced by the provisions in the 1937 sugar act and in the pending general farm legislation for graduation of government payments to farmers.

Sixth, security of tenure. This may be considered not only an end in itself, but also an essential condition to the attainment of other objectives, particularly adequate income, the family-size farm, and soil conservation. Security of tenure is recognized as a major objective in the tenancy law enacted in the first session of the present Congress.

Seventh, better land use. This objective underlies many phases of recent legislation and many lines of administration. Besides soil conservation and security of tenure, it embodies policies affecting land not under production. It involves purchases of forest land, establishment of new recreation areas, control of grazing in the public domain, and withdrawal of submarginal lands from cultivation.

Eighth, increasing farm efficiency. This is, of course, a well recognized and long-established objective, fostered by public support of agricultural research and education.

Ninth, improvement of the marketing system. Government encouragement and assistance to farmers' cooperative marketing

associations to eliminate waste and duplication of facilities and to provide farmers with a greater opportunity to influence the handling of their commodities were early manifestations of this objective. Fair practices and honest dealing on the commodity exchanges and grading and standardization also have important places in the improvement of the marketing system.

Tenth, adequate credit for farmers. This is another well-established objective. Farmers now have long-term mortgage credit, intermediate and short-term credit for both production and marketing, and a somewhat different type of credit in the form of rehabilitation loans to improve the position of disadvantaged farm families.

Now, implied in all of the 10 objectives of agricultural policy that I listed are two others of a more inclusive nature. These are, first, increased agricultural well-being and stability as a means of contributing to national well-being and stability; and, second, maintenance of the democratic process.

There may be some who would say that agriculture's greatest well-being and stability and its fullest contribution to national well-being and stability can be made possible through broader national policies with respect to money and credit, wages, industrial prices, and international trade. These are vitally important to agriculture. But anyone who says that agricultural well-being and stability can be attained solely by government control and manipulation of money and credit, by lowering trade barriers throughout the world, by decreasing the rigidity of prices, or by prohibiting unfair trade practices and curbing monopolies is ignoring both the sweeping nature of the changes that have occurred in international trade relations, and the instability that arises primarily from within agriculture itself. Moreover, he is ignoring the waste in the marketing processes and the excessive risks involved in handling, marketing and distributing agricultural products under a production and price system that results in small available supplies one year and price-depressing excesses another.

For 150 years economists have been analyzing the growing economic system in terms of balance between its many elements. All economists understand that the welfare of every individual or group in society is so completely tied up with the welfare of all the others that maintenance of balance is necessary.

Economists are in agreement that if one element gets out of line, whether through the wrong kind of group control or failure of the automatic processes of laissez faire, the entire economy suffers. They never in their sober thinking, unstrained by emotion,

advocate complete abandonment of all the economic controls exercised through the sovereignty of government. They realize the necessity for laws regulating contracts and the transfer of property, for prohibiting and preventing unfair and dishonest business methods, and so on.

I believe the real question in the minds of economists is this: How far will these controls have to go in the case of each group or individual to provide for a balanced but still progressive society?

To arrive at an answer requires study of all the conditions affecting individual and group interests and the interactions between them. And obviously, the answer can never be final.

The second more inclusive objective implied throughout the list of agricultural policies is maintenance of the democratic process. By the democratic process I mean that which retains the supreme power in the hands of the people, which exerts the will of the people through laws adopted by elected representatives and administered by men responsible to the electorate, and which subjects personal and economic activity to only so much regulation as the people determine to be necessary for the general welfare. Maintenance of the democratic process is at one and the same time an end in itself and the only effective way of operating a farm program in this country. With much of the world turning to more regimented political and economic systems, the importance of taking steps to assure maintenance of our democratic process becomes greater. Our country in the past has accepted the continuance of the democratic system without question. But throughout the world since the War alternate heights of prosperity and depths of depression have brought out social attitudes and psychological traits that imperil the very lifeblood of democracy. Maintenance of the democratic process must be recognized as a permanent and vital objective of national policy in the United States.

We face, then, two questions which assume major importance: First, what particular methods will be most effective in attaining the objectives of national agricultural policy? Are those methods compatible with our democratic institutions and processes?

While the need for each objective of agricultural policy has been discussed before this association numerous times, there has not been as much discussion about the methods for attaining these objectives.

I should like to attempt a thoroughgoing economic justification for each one of the particular methods being employed, but the time is not sufficient for that. Seven volumes were required for the Brookings Institution to discuss methods of agricultural adjust-

ment. It would be presumptuous for me to present my own analysis in one short paper.

III

The selection of national objectives and methods to reach them brings the necessity for some kind of "planning." But this simple and forthright word "planning" has in recent years acquired contradictory meanings. For some, it symbolizes their aspirations toward more rational economy or the more abundant life. For others it signifies unnecessary government meddling in private affairs, loss of fundamental liberties, regimentation, and state socialism.

I shall return to a simpler meaning for planning, namely that of trying to see where we want to go and then trying to find the best means of getting there.

The farmer himself looks on agricultural planning as a normal, reasonable and necessary thing to do. To him, much of the excited criticism of planning as an autocratic thing is unjustified. One reason the farmer looks upon agricultural planning as being democratic is that from the very nature of his own work he has to look further ahead and has to plan more carefully than most other people. Months and, in the case of livestock, even years may be required to produce and market farm commodities. The farmer has to plan in advance when he plows his fields, sows his wheat, and decides what acreage of corn is needed to support his next year's feeding operations.

From its beginnings on the farmer's own land, the scope of his planning naturally and democratically expands to a community basis. He and his neighbors together plan and carry out many community undertakings—ditching and drainage operations, road building programs, school developments, farm organization work, club work, cooperative marketing and buying, and many other activities.

From the farm and the community, the farmer's agricultural planning activities widen rapidly and spread over community lines in every direction. Thus you will find his cooperative buying and selling associations, his elevator companies, and his organizations extending over state boundaries and even assuming national scope. Critics who assume that farmers live and want to continue to live a planless existence either lack accurate information about the farmer's true activities and his thoughts and feelings or else they ignore the facts. From the farmer's point of view, the concept of national planning is a natural development growing out of his every-day experience.

When used in this sense, the issue of a planned as against an unplanned economy collapses. The real issue is not planning or no planning, but the role of government in the planning process.

In a democracy, this role is played in a different fashion than under other political systems. The type of planning that I am talking about is the type that is always carried on in a democracy. Planning as it is done in modern democracies, under the type of government we revere in the United States, is certainly not undemocratic. The people of our nation indicate through their every expression that they want some sort of planning. Still there are no signs today that many of the whole people, or of any group want to have their economic lives regulated by a central authority.

The people have determined for themselves that a planless agriculture is not consistent with the general welfare. They realize that the important goals of agricultural policy will not be achieved by leaving the individual farmer to his own resources. This is the verdict of experience. No amount of emotion will change the fact that in the decade of the twenties unlimited competition in agriculture adversely affected the whole economy. Without some mechanism for coordinating their labors, farmers mine the soil of its fertility at the expense of the future. They market alternate excessive and insufficient supplies. They undermine their own incomes to the disadvantage of all elements in the economy as well as themselves.

The type of democratic planning necessary to attain these goals is a problem vitally important to the welfare of our whole society. Clear thinking upon the subject is especially important at a time when economic problems are again becoming so real. At such a time leaders chosen by the people and experts with a specialized knowledge of the problems have a particularly important responsibility for developing measures to improve conditions generally.

Of course there is also the problem of incorporating democratic methods in the administration of legislative enactments. It is probably a misconception of the functions of government to believe that this is any more necessary in the case of farm programs than any other form of governmental activity. True, the work of formulating any phase of farm programs requires a great deal of foresight upon methods of administration. But similarly every governmental activity requires foresight.

It is axiomatic in our government that the methods selected must meet with public approval. If the methods are not approved by the public their doom will be inevitable, for the voting public

ever has its hand on the throttle of governmental authority and appropriations.

Any agricultural program must preclude in so far as possible all temptation toward evasion of the type brought on by such rigid laws as the prohibition laws. When there is a condition leading in the direction of disaster which the legislature decides must be relieved, the selection of methods satisfactory to the public may be very difficult. Nevertheless, a democratic legislature is impelled by elective responsibility, demands for operating economy, and threats of troublesome enforcement to adopt the most democratic methods available.

IV

Some of the newer and less settled objectives of national agricultural policy seem to require methods of approach that are not traditional parts of our administrative system. The methods that have been used or that may be used in striving to attain these objectives should be considered seriously in the light of their effect upon our democratic processes.

First, government payments to farmers. Payments have been used throughout the operation of programs under the Triple-A. The farmers whose compliance with acreage adjustment and agricultural conservation measures has been sought with payments have not intimated that this method is undemocratic. The farmers have freely, whenever they found it to their financial advantage, refused the government payments and proceeded to farm their land in complete disregard of the government's program. It may be asserted that the money paid to farmers comes from someone else's pocket. But if the electorate has determined that the agricultural program should be carried out by the government, and that payments to farmers should be used to do it, that assertion can have no weight upon the question as to whether the payments are democratic. Likewise if the agricultural program promotes the general welfare by keeping agricultural income more nearly in balance with the national economy, any assertion that the payments are uneconomic suffers invalidity before it is stated.

The payments to farmers are commonly described in either one of two different ways. They are sometimes described as if they were purely subsidies. As such, it is sometimes contended that they are open to the criticisms brought against subsidies in general. This point of view, however, ignores the fact that farmers are receiving smaller compensation for their efforts in comparison with non-farmers than has historically been the case. The point of view that farmers' payments are purely subsidies and as such

are bad also ignores the fact that government subsidies of non-farming activities including subsidies in the form of tariffs and direct payments to great monopolistic industries have become apparently a permanent part of our system.

To an important degree, however, these payments to farmers are not subsidies in the usual sense of the word. Instead, they are compensation or rewards to the farmers for doing things in the national interest which the farmers would be unable or less able to do alone. In a general way the payments compensate the farmer for only part of his costs in adopting soil conservation practices or his sacrifice in taking lands out of cash crops which deplete the soil and in putting them into soil-building legumes and grasses. Now of course, persons who just do not like the farmers' national programs and who make use of all arguments against them that come to mind, no matter how contradictory, try to condemn the payments merely by describing them with the most distasteful terms they can find. So one even hears the payments referred to occasionally as "bribes." But the use of such terms does not conceal the fact that the farmers' payments under the Triple-A are far more in the spirit of democracy than most subsidies because instead of being special privileges to a favored few, they go to large numbers who are engaged in the vital enterprise of producing the nation's food. The important thing is that in the main these payments do serve purposes which are useful to society.

Second, commodity loans to farmers of the type provided for in the pending ever-normal granary legislation. Such loans are the basis for a technique of warehousing agricultural products at a time when they would not be absorbed in channels for consumption. The warehousing function is performed in our system whether it is done through a governmental program or not. But public credit to keep the commodities in the hands of farmers until marketing channels are prepared to transfer them to consumers for use prevents accumulated surpluses from so completely upsetting prices and reducing agricultural incomes. Commodity loans can offer farmers an opportunity to benefit rather than suffer from high yields. One suggested alternative is purchase of the entire surplus of a commodity by the government. The far-reaching consequences of purchasing 6,000,000 bales of cotton at the present time by one of the administrative agencies of the government could hardly be envisioned. It would do much to destroy our present system of marketing and distributing the cotton crop.

Third, marketing agreements and orders. Marketing agreement programs, carried on under the Agricultural Marketing Agreement

Act of 1937, make available to farmers through a democratic process a method of attaining one of the objectives of the cooperative marketing movement. In the past those who operated contrary to the policies of the association and remained on the outside often undermined the cooperative's program because they were able to benefit more than those who were cooperating. The marketing agreement programs make it possible for *two-thirds* of the producers of a commodity in cooperation with handlers to require marketings to meet the provisions of the program.

Fourth, marketing quotas. Marketing quotas would place a top limit upon the quantity of a product—cotton, wheat or corn—which might be marketed in one marketing period. Supposedly, the marketing quotas would be available for use only when supplies were substantially in excess of the quantities that would be consumed during the marketing period. With no technique for all farmers together to withhold their excess commercial supplies, many have been forced in the past by financial need to sell on a glutted market, lowering returns to all farmers and extending disrupting influences into the rest of the economy. With marketing quotas, farmers would presumably withhold unusable excesses, obtain government loans on them, and at a later time when the supplies would be used, sell them at their own discretion. Through the government loans available to them with the quotas, farmers would receive at the time they warehoused their excess production reasonable returns upon their commodities. Then bounteous yields would increase economic well-being, instead of impelling price declines, injecting unbalance, and implanting seeds of general economic disorder, as has been the case too often in the past.

Would a system of marketing quotas be an undemocratic method of helping to attain some of the objectives I have enumerated? It might be considered an undemocratic method if it were available for use without the sanction of society, without sufficient safeguards, or without reference to the existence of extreme conditions. The problem is to condition the use of the quota system upon safeguards of such a nature as to insure to the greatest degree possible that the spirit of democracy is retained. I am assuming that the quotas would be put into operation only after a two-thirds vote in a referendum of the farmers who would be affected. To exempt those who did not favor putting quotas into effect would not seem to be fair to the large majority. Such exemption would allow the minority to nullify the efforts of the majority. The democratic nature of permitting a minority to have this effect on the majority certainly would be open to argument. The question

also arises whether the quotas could be administered in a democratic way. Experience of the past few years gives reason to believe that this would be possible through the county and community committeemen elected by the farmers.

Fifth, crop insurance. Through crop insurance individual risks of crop failure could be disseminated among the whole group of farmers participating in the plan. This method of increasing the income stability and security of tenure of the individual farmer would be voluntary and democratic.

Sixth, rehabilitation loans to farmers. Through these loans by the Farm Security Administration worthy disadvantaged farm families can be enabled to reestablish their farm earning capacity. This surely is in keeping with the spirit of a democracy.

Seventh, soil conservation demonstration areas and legally constituted conservancy districts. Erosion can be retarded and minimized in local demonstration areas where productive resources are being lost. Voluntary participation by farmers in these areas insures effective, democratic administration of the soil erosion program. The conservancy district plan makes possible local control in meeting not only erosion problems, but broader problems of land use.

Eighth, expanded use of educational techniques. The democratic process requires an informed and understanding electorate, which can grow almost solely through widespread education. To be worthy of the name, education must be dissemination of uncolored facts and principles. Some selection of the material for education is inevitable but real education does not amount to selection of the solutions to the problems that exist; it amounts to stimulating the whole people to think for themselves, to participate actively in planning, and to select one of alternative programs according to their own uninfluenced and best thinking. The functions performed by the Extension Service, following these principles of education, have assumed a place in our system that is unquestionably in keeping with democracy. A new stimulus has been given to education among experts as well as farmers by their experience with effective action programs for agriculture. Education is implied in each of the suggested methods for carrying out agricultural policy. The development of new techniques and expansion of the educational functions should be encouraged.

V

The fact that national agricultural policies have been crystallizing through the democratic process is obvious to the student of

current developments in agricultural legislation and administration. When the Triple-A was invalidated by the Supreme Court in January, 1936, there was so much popular steam behind the adjustment idea that farmers and Congress both made a greater effort than ever before to recreate some of the important phases of national farm policy and find methods to make them effective. The Soil Conservation and Domestic Allotment Act was passed within 60 days after the Supreme Court handed down its decision.

But soil conservation was found to be not enough. Some more concerted effort, it was generally agreed, would be necessary to give sufficient stability to the supplies of commodities produced from year to year and moving into consumer channels. Although there was wide-spread realization of this a year ago, the entire period since that time has been required for farm opinion to crystallize in the form of legislative action. After the conference of farmers and farm leaders held in Washington last February 9, the subject entered the discussion stage. Eventually several bills were introduced in Congress. The Senate and House agricultural committees worked on these bills for months. Before adjourning last summer Congress passed a joint resolution declaring that farm legislation along certain specified lines should be the first order of business when it reconvened. A subcommittee of the Senate Agricultural Committee was selected to sound out public opinion and particularly farm opinion upon the question of new farm legislation. This committee held thirty meetings, heard 1,500 witnesses, and took 16,000 pages of testimony during a period of one month throughout the major agricultural areas of the nation.

When the committee had decided upon a bill and had reported it out, the Senate proceeded through the same democratic processes that have always characterized its work to debate the proposed legislation for four weeks.

In the House of Representatives a bill following the same general principles was developed by the House Agriculture Committee. It was different in many important respects but carried forward the same important economic ideas. Debate in the House lasted two weeks, during which more than 200 amendments were offered from the floor.

Both bills have been passed and have now been referred to conference committee for reconciliation of differences between them. No one knows now exactly what the final form of the legislation will be. Possibly it may fall a good deal short of meeting the needs. In that event it will require further improvement and refinement by the legislative process.

All sorts of charges are already being hurled at the new farm plan. Of these, perhaps the most absurd is that the aim of this legislation is to bring fascism to America. If a dictator really were in charge in this country, he would not take a whole year to make up his mind what he wanted. He and his aides would draw up the plan in a week's time and promulgate it over night.

The process by which this farm plan is coming about may have its drawbacks, but these are drawbacks inherent in a democracy and not in a dictatorship. Democracy in operation is often unlovely to behold. It creaks along over many a bump and rocky place and when it finally arrives half of its load may be spilled out. But what is the alternative? The alternative is some dictatorial system like those that have sprung up in other parts of the world. If we really prefer the method of democracy to that of dictatorship, we must be somewhat philosophical about its faults and at the same time do what we can to make it operate more effectively.

It is not sufficient that only the enactment of agricultural legislation be democratic. The details of agricultural programs and the administration of legislation must be carried out in a manner as democratic as possible. The county planning committees established throughout the major agricultural areas are excellent illustrations of participation in agricultural planning and policy making by the body of people affected. Experts and specialists may work upon the technical details, gathering statistical, scientific, and economic information to determine for themselves what they might think would be the best program for accomplishing a specific objective.

But the work of experts and specialists is not enough. It has been the experience of the administrative officials responsible for the agricultural adjustment and conservation program that a plan cannot be administered most effectively and most economically unless the farmers themselves are well grounded in fundamentals and sufficiently understand the whole idea involved. More than that, the program has to be practical, according to the farmers' own standards. And those standards can hardly be met unless real farmers share much of the responsibility for determining what the program is going to be. That does not mean simply hiring a few farmers to stay around the offices of the South Agricultural Building in Washington. It means getting the whole body of farmers throughout the country to think and act for themselves. It implies the unity of attitude that results from understanding the facts involved in conditions recognized as undesirable. It requires organization of county discussion groups. It requires the use of com-

munity planning bodies and county planning committees that make definite recommendations upon the production and acreages that will result in the best farming practices in their own counties. To make the most practical suggestions these farmer committeemen must have adequate conceptions of complex phenomena—of national production trends, of effective economic demand, of international trade, of farm management, of soil productivity, of any number of other elements affecting their incomes, soil fertility, and the general welfare. All this, I believe, is leading us toward a better informed democracy, which will in the long run mean not competitive freedom run riot as we have known it in the past, but more effective group action in the public interest.

Even though our emotions may rebel at the admission, we are forced to the conclusion that in any society that is not anarchy the central government, in a greater or less degree, has a function of assisting, interfering with, or regulating the economic activities of groups and individuals. The assistance, interference, or regulation by a democratic government presumably has its genesis in the attitudes of the people.

This, then, is the challenge to economists who assume the duty Henry C. Taylor in 1920 said belongs to them, to take the lead in the solution of farm questions and to aid those who are demanding action. It is the task of the economists to do their part to assure that government programs contribute to attaining the objectives which the people desire and that these programs are in harmony with the attitudes of the people and the democratic process.

OBJECTIVES IN OUR NATIONAL AGRICULTURAL POLICY

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Acknowledgments are due at once to the many who have essayed the task of setting the country right respecting the objective of the Government during the period of formation and operation of its first five-year plan. Respecting the contents of this paper I am clearly debtor both to the Greeks and to the Barbarians, to the wise and to the unwise, and while the subject is by no means new, it is in no sense settled.

We have had recognized national agricultural policies since the days of Henry Clay, with his Home Market program supported valiantly by both of the Careys. This policy—indeed plan—was put into effect as far as circumstances would permit for a hundred years, and is not yet, politically or theoretically, in the discard. Coming much later the all round protection beginning conspicuously in 1890, involved, as a major feature, an agricultural policy. Another line of policies designed to promote a desirable agricultural development is seen in our century and a half of land legislation and disposal. These are but samples, perhaps the leading ones, among the many attempts on the part of the United States government to foster and guide the farmers of the nation. All of these plans, down to about five years ago, were general, and left each individual to fit himself into the arrangement as best he might. Beginning in the spring of 1933 the farmer was asked, and expected, to comply with a program in which his procedure was to be under the rule and guidance of authority. We used to consider the *laissez-faire* freedom of yesterday the consummation of democracy. Now we are talking in terms of individual, personal control of production, and under the conspicuous caption, Economic Democracy.

The objectives involved in these older agricultural policies were of a broad gauge character. The settlement of the country; the establishment of an independent, sturdy yeomanry; the promotion of the highest type of citizenship; the promotion of the highest degree of morality, happiness, and prosperity. These policies were not, as a rule, to cure ailments, but rather to induce growth, to foster development. Occasionally there was, true enough, something offered in the way of a remedy, but it was rather in the nature of a lotion to be applied outwardly. Such remedies, being relatively harmless, do not have to be preceded by a careful diagnosis. They are rather in the nature of proprietary medicines which

the patient chooses, and uses, as he thinks best. These remedies were usually more import tariff on export commodities, or a lowering of the interest rate allowed by law—acts not expected to be enforced. During the past decade the farmer began to ask for something more specific, and more potent. The remedies asked for were to be used in treating internal ills, many of them becoming chronic, most of them not at all well known to the doctors in charge of the case, or rather of the epidemic. In any event not much was done, the only real attempt being that embodied in the Farm Board. Here the main objective was clearly that of raising farm prices, which was, indeed, accomplished for two products, wheat and cotton. The prices of these cereals were held up for approximately eighteen months, at the end of which time they went down to unbelievably low levels; a logical result of the program though neither planned nor anticipated. A political statistician can balance the gains and losses, through selection and rejection of data, and get the results wanted by either party.

It was against this rather murky background that the New Deal undertook to spread, at least in more pleasing colors, its Planned Economy. For a time we felt rather humiliated that we had not made, or at least considered, these plans earlier. We had at the launching of the Farm Board undertaken the building of a tower without first sitting down and counting the cost. The structure was top-heavy. The scarcity which had been our economic salvation had, through inadvertence, been converted into an abundance which assumed the form of the traditional millstone. Thus the planning, as begun in 1933, consisted in getting rid of this "too much." The guidance of the unseen hand was apparently no longer to be trusted. We found ourselves launched on a farm planning venture. Primarily the plan was, and still is, national. Significantly it finds itself one of many such ventures, extending well around the world, all national, or in the case of England a similar plan including a group, or federation, of virtual nations. We, this discord of nations, are all of one mind regarding the advisability of directing farmers in their work of producing food and fiber. The purposes and therefore the plans, however, differ widely from country to country. It is time for a revival of the study of Sir James Steuart.

In general terms the plans are of two types: those of the countries with agricultural deficits; those of countries with agricultural surpluses. The countries with deficits, found mainly in Europe, have no insurmountable difficulties in controlling, that is to say, in stimulating farm output. For example, the German farmers, pro-

tected by a tariff of, once nearly two dollars a bushel, now very much less, on wheat, can raise substantially all the bread grains the nation needs. The quota, not the tariff, is the main means of control. France has arrived at the full hundred per cent level of wheat needs, all from her own soil; while the winning of the "Battle of Wheat" in Italy is a matter of history. England still hopes to produce, at home, enough wheat to last for twelve or fourteen weeks out of the fifty-two.

Our Troubles, and Results, in Decreasing Acreages

We, representing the surplus group, now have on hand cotton sufficient for home consumption for about four years were none exported, or for more than two years should exports continue at the same level as for the year 1936–37. Our wheat production presents a most discouraging aspect to those who hope for control of output through present methods. During the drouth years we were indeed a little below the estimated consumption requirements, but it was only a little. The seven lean kine coming up out of the river, not very lean, and hardly to be called ill-favored, would look more than twice at the seven fat-fleshed bosses before eating them alive; and how they themselves would appear after eating their seven well-favored sisters is beyond imagination. The fact is our lean kine have been few in number, and only relatively, not positively lean. Our wheat crop of 1937 is not designed to make the country any safer for the Democrats. Neither is it the production of 886,000,000 bushels which is the most disheartening feature, since the total amount on hand is scarcely larger than our ever-normal granaries, counting the past fifteen years as "ever," have customarily accommodated, at the beginning of the season. The distinctive "ever-normal" feature of crop control, namely, the enforced, or induced, carry-over, is amply provided for in the pending bills in Congress. We will pause just a moment to ask why it should be viewed as so disastrous to buy a little wheat of the Canadians when we are short, paying for it with steel products and coal? We first seem to shrink from buying foreign goods when and because we don't need them, and again in the ever-normal granary doctrine we retreat from the position of willingness to buy what we do need. If it is the high price we are afraid of, in case of a short crop, why not lower the duty because of the desire for wheat at a moderate price? The tariff revenue would be fully as great by letting in a million bushels at ten cents, or nothing at all, as by keeping it out altogether, and labor employment would be much greater. The real concern to the nationalistic planners is, or

should be, the eighteen-million-acre stepping up of the land planted to wheat in 1936–37 as compared with the smaller area of the years just preceding. This may be looked upon as the bourgeois response to the New Deal price of one dollar in contrast with the immediately preceding Old Deal price of thirty-five cents (autumn of 1932).

The Objectives, Primary and Secondary

The ultimate, or primary goal of the National Agricultural Policy, as stated by the platform makers in 1932, appeared to be "the restoration of agriculture," meaning the restoration of the 1910–14 purchasing power, reckoned in terms of price per unit. Incidentally agriculture was declared to be "the nation's basic industry." But the platform makers were not content to leave this vital plank unsupported; they hastened at once to advocate the control of crop surpluses, and promised "the enactment of every constitutional measure that will aid the farmers to receive for their basic farm commodities prices in excess of cost of production." Then comes, by implication, their first breach of promise. After having pledged themselves to "eradicate the policies, methods, and practices herein condemned," one of which was embodied most conspicuously in the Smoot-Hawley tariff act, and to which the following scathing paragraph was addressed: "We condemn the Hawley-Smoot Tariff Law, the prohibitive rates of which have resulted in retaliatory action by more than forty countries, created international economic hostilities, destroyed international trade, driven our factories into foreign countries, robbed the American farmer of his foreign markets, and increased the cost of production." Yet they calmly left the act on the books untouched. This law could, no doubt, have been repealed, restoring the Fordney-McCumber Act, in an hour's time, to the benefit of the farmers and the consumers; to the lasting advantage of the Democrats, and the humiliation of the Republicans.

The promises of the party did not by any means stop with the platform enumeration. During the campaign the president-to-be-elected not only promised relief to the farmers but gave, specifically enough, the outline of the form it was to take. He adopted as his pattern of agricultural reform the Spillman allotment plan of crop limitation.

A few more declarations must be mentioned: The Farm Board was condemned for having made the Government a disastrous speculator in farm products, and for "the unsound policy of restricting agricultural products to the demands of domestic mar-

kets." Apparently they were not happy to find that the Republicans were using, though only in laboratory target practice, the weapon which was to serve the New Deal as its main field piece in a succession of campaigns.

A better financing of farm mortgages was advocated. This plank, while not conspicuous in the platform of 1932, was probably, save soil conservation, the best part of their agricultural program. The only danger in the farm credit policy of the Federal Government respecting farm credit is that in case this current depression, or some subsequent depression, should re-create the disasters among debtor farmers of a few years ago, that the Frazier-Lemke faction may win, and that the interest rate on farm loans will be reduced to the vanishing point, with the length of the loan term stretched out toward a century.

The farm program for the past two years has centered around soil conservation, a subject which appeals to all, whether in country or city, as a worthy objective. In connection with this phase of farm aid, crop control has played a part, but has not limited either acreage or production of major crops. Promptly after the adverse AAA court decision, the Soil Conservation and Agricultural Allotment Act was passed. The plan was to reward the farmer for abandoning soil depleting crops in favor of soil building crops. Now it so happens that, in general terms, the soil depleting crops are the ones which bring in the most cash for a given year, so far as the majority of farmers are concerned. No doubt the soil building crops have been encouraged by the small sums paid to farmers as premiums, or bonuses, inducing the change. Great claims have been made as to the ready acceptance of the plans by farmers. However, the figures published by the Bureau of Agricultural Economics do not show any precipitate rush away from the leading money crops toward the crops designed to retard the further extension of the Mississippi delta. For instance, wheat is classed as a soil depleting crop. In the eight leading fall wheat states the acreage sown in the autumn of 1936 was 22 per cent greater than in 1935, and still higher in 1937. Spring wheat acreage was up 10 per cent in 1937 as compared with 1935.

Corn is a still worse soil depleting crop, and it was the hope that its acreage might be signally reduced. In the eight leading corn states, omitting Kansas and Texas which are included in the wheat states above noticed, there was an increase of nearly five million acres, or just over ten per cent in corn reported as growing in July 1937, compared with that of July 1935. (The drouth of

1936 reduced the acreage so much that a comparison of that year with 1937 is hardly significant.)

The other great soil depleting crop is cotton. From a forty-million acreage in 1933, by means of plans and plows we came down abruptly to twenty-nine million (euphemistically referred to in the *Yearbook of Agriculture,* in a footnote, as "removal of acreage by the AAA"). With the change from the original AAA to the soil conservation program the cotton acreage in 1936 rose ten per cent, and again another ten per cent for the current year.

The conclusion is that whatever good features the Soil Conservation Act may have it does not control the acreage of the soil depleting crops.[1] This accounts for the special session of Congress, and the two bills now awaiting the action of a joint conference committee. In these bills provision is made for a more rigid control of farm output than we have yet accomplished. The payments to cooperating farmers will, if carried out according to either bill, be far beyond anything yet known. Only five crops figure in these new bills, the main soil depleting crops: corn, wheat, rice, cotton, and tobacco. Should Congress succeed in passing a bill not unlike either one under consideration, involving relief, and control, for these five crops only, the residue of farmers are destined to be heard from. The great army of dairy farmers may, or may not, be satisfied with tariff alone as their apportionment of aid. The cheese producers are already dissatisfied. The poultry and egg producers may not be contented with an increase of feed costs, they being feed buyers, and nothing done to protect them from themselves as producers of cheap eggs. The pig feeders may not be happy in going through, even a single year, feeding high priced corn to cheap pigs. This unfavorable condition would not be permanent, but a year is long, while it lasts.

With the passage of either of these bills the objectives, while not undergoing a radical change, assume a somewhat different aspect. The all-inclusive objective is still "the restoration of agriculture," to which conservation of the soil is attached as a permanent corollary. Among proximate benefits may be mentioned payments required to induce the farmers to grow little enough to prevent the accumulation of surpluses, coupled with the withdrawal of loans should prices rise above parity in order to insure to the consumer supplies at a "fair" price; the establishment of the ever-normal granary as a safeguard against famines. These are the major means. A casual reader of these projected measures might arrive at the conclusion that the ultimate goal was extreme

[1] H.R. 75 Cong. Report No. 1645.

nationalism, yet mention is made, more than once, of foreign markets which are to be discovered and fostered. Indeed Mr. Hull and his helpers are not giving up in despair, but on the contrary are making commendable progress, with trade agreements.

In the spirit of these current bills we shall, therefore, look forward to the return of foreign trade with doubts and misgivings, and because of such dubious prospects, will prepare for self-containment if, and as, the foreign outlet fails to develop. The objective now is agricultural restoration through a genuinely controlled output; soil conservation; a supply of goods held under lock and key and loan, such supply to serve the double purpose of security, on the one hand, and a price leveler on the other; jointly leading to a situation which will "Enable agriculture to contribute its share to the business and industry of the nation through possessing an adequate and stable farm buying power."[2] We are all glad to have agriculture contribute to the revival of business and industry, but are wondering, as we look at the almost coincident curves showing factory payrolls, manufacturing output, and construction progress—we are wondering by what sort of reasoning our law makers arrive at the apparent conclusion that farmers' dollars are so much more nimble or efficient than the dollars of the other three-quarters of the population. Perhaps it is the ease of obtaining them which gives them power. Remember that nature labors along with man in agriculture.

These then are the objectives, within which are implied all the good things of farm life assured by a return to the purchasing power per unit, or maybe the income parity, enjoyed in 1910–14. This looks fine so long as we remain below that level. It did not seem thrilling when it was a reality. It will not for long, if, and when, we again reach it. The goal, to repeat, is a restored agriculture; a planned agriculture; a constant store of products, supported by which we may stand a siege of drouth, locusts, and murrain. Apparently we plan to make ourselves independent of the rest of the world, and then deal with it when and as it appears feasible and agreeable to us.

Since we all approve the final objective, in the broad terms of a restored agriculture, it remains only to comment on the steps proposed, and the steps already taken, as the means of arriving at the goal.

The cotton situation has been handled the most nearly in full accord with plans. The adverse court decision and the price policy of the government, plus weather disastrously good, have, this

[2] Agricultural Conservation: A National Farm Policy, AAA, G-62, December 30, 1936.

year, concocted a cotton situation to give us pause. Let us review for a moment the program we have followed. All agree that cotton was too plentiful and too cheap in 1933. We reduced the quantity—a good start. We had cotton particularly in mind when we reduced the gold in the dollar, and in that connection it was freely predicted that cotton would, under the ægis of the new dollar, rise automatically to ten or eleven cents a pound. Then, forsooth, why not raise the price immediately to that figure? It was done by the granting of loans, at ten, and later, twelve cents. Probably the devaluation of the dollar was a factor in helping the actual price to rise to the pegged price. The secondary effect of the high prices of American cotton was of more importance than the immediate effects. We encouraged the production of cotton in Brazil, Argentina, the Sudan, China, Russia, and so following, as nothing else ever had done. We lost forty per cent of our cotton trade with the world. Just how to hold our prices perceptibly above the world price and still export has not yet been revealed, except in terms of the McNary-Haugen Bill, which few indeed now dare to advocate.

Corn and wheat, like cotton, are distinctly out of hand so far as quantity is concerned, in terms of home use. Thus the three greatest crops are clearly in the way of making trouble. Unless something be done, and that not only quickly, but firmly, we are destined to see a readjustment through deflated prices. It is in view of this fact that Congress was called into special session last month. Until within the very recent past a special session of Congress manifestly in behalf of farmers, would have been considered preposterous. Not only has this come to pass, but Congress has taken the call, and its duties, seriously. Tradition has it that Nero fiddled while Rome burned. If we go up in smoke it will be with the accompaniment of a full symphony.

The Farmers' Political Power

As noted above the farmer now has more power in the political affairs of the nation than at any previous time in a century. Looking back for a moment to the Presidential campaign of 1932 it is evident that some new counting of prospective electoral votes has been done. Mr. Roosevelt does not look or act like a farmer. He has pitched even less hay than did Coolidge, but he is a more skilful fence builder. He resolved in 1932 to carry the whole electoral vote of the Mississippi Valley, north as well as south. He made promises as definitely as did his opponent, and as definitely as had any previous candidate of his own party, which is saying

a great deal. And still more remarkable, he made the promises with prospects of a chance to put them into fulfillment. He succeeded in his political plans better than he anticipated, and took his responsibilities with all seriousness. The election and its aftermath had the appearance of a farmer victory. What is more, along with other features, it was.

The farmers were called into council, three major groups, and two others which, though influential, may be called minor. Of the three major groups, the representatives asked, one for cost of production and an astronomical issue of Greenbacks, plus a marketing quota; a second wanted control of production and a parity price; the third, along with one of the minor groups, harking back to Hamilton and *laissez-faire*, an ill-matched team, was concerned over the maintenance of all agricultural tariffs, and especially opposed to control over output.

When, later, it came to the question of reciprocal trade agreements, there was lack of harmony among the farm advisers—and is yet.

The farmers have played a big part in the past two presidential elections; they have the power in their own hands to do anything within reason; but they have been unable to unite under a unified, efficient leadership. It is not strange. The country is big. Interests are diverse. The farmers had had little to do with major law making for many years. Now, all at once, as it were, the farm affairs require action of both national and world import. They are at a loss to know how to proceed with respect to control. For example, should prices, or income, be brought to parity, what would happen in the matter of an increased number of farmers who would see in the parity prices of 14- or 16-cent cotton, 85-cent corn, 53-cent oats, and $1.17 wheat reasons for not leaving the farm, or being away, would see tangible inducements for returning? Should crop and price control work out as planned, the farm army will increase and require more control. The farmers in whose interest these controls are to be adopted may wonder, just a little at least, how consistent with this program is the doctrine and supporting evidence back of the argument in favor of the Grand Coulee power and irrigation project, with its promised million and a quarter acres of land, equal from the standpoint of production to some four or five million average acres. Something more than the assurance that the American farmer is entitled to the use of the best land the country affords is needed in support of the wisdom of the venture. It is probable that some of the best land, potentially, which we could avail ourselves of, is to be found

under water around and beyond the mouth of the Mississippi. If the erosion stories are half true there is where we may find much of our best soil, and the example of little Holland should lend courage to a proposal to redeem it. Such a proposal, though absurd, should harmonize with the argument used at, and about, the Grand Coulee outlook and outlay.

An Instance of a Stabilized Price

Although not strictly on the subject of this paper, it is not going far afield to suggest that the national labor situation is closely associated with agricultural welfare. Of course all business affairs are closely knit into one fabric, but the warp, or if you prefer, the woof, is contributed by labor. Nothing is clearer than that there will be no smooth-working, economic democracy, until labor and its employers are on better terms, and there can be a reasonable prospect that projects undertaken may be carried through as planned.

With six million to ten million unemployed, while the wages of those who do work are still at, or near, the post-war peak, it would seem that there are other basic elements—other than farm prices and farm crop control, involved in the economy of the hour. When Congress gets the farm problems settled it may well have a session devoted to the economic democracy, and fairness, of labor, its needs, demands, and deportment.

This is not the time, or place, to discuss the merits of labor attitudes and deserts. Sixteen years ago next month the great labor leader Samuel Gompers, addressing a large conference of farmers and their friends, speaking of the severe depression of the preceding year and a half, said : "I told my laborers to take all their punishment in the form of unemployment, but not to let any man reduce the scale."[3] The laborers took the advice all too well. As a matter of fact they were already following this precept, and Gompers was playing the part of a great leader indeed by telling them to do what they were already doing. The labor history of the past fifteen years furnishes a clear-cut example of a stabilized price, stabilized at a high level, in an unstable world with a general low level. One cannot resist alluding to the old fable of the monkey and the nuts, popularized in McGuffey's *Third Reader*. The monkey tried to take a big handful of nuts out of a small-necked jar, and refused to take a smaller handful at a time. Then came the inevitable moral: "Do not grasp too much or you may lose all." The laborers of today were not brought up on McGuffey. In the

[3]Agricultural Conference held at Washington, D. C., January, 1922.

wages of labor during the past fifteen years we have an example of a stabilized price of one factor among others unstabilized. Would more employment, and less pay per hour, bring about a higher level of prosperity to laborers, as well as others? This is a major question.

Conclusion

The best statement of the case for the farmer yet made is probably one of the earliest of the New Deal pronouncements, *America Must Choose*, by Henry Wallace. In that pamphlet it was made plain that the two ways open were, either the nationalistic, isolationist route, or the internationalist, world trade plan. In this brief statement the author makes plain the dilemma. We had, and have, too much production, and moreover, too much capacity for production, for comfortable nationalism; the prospect of a rapid restoration of foreign trade is not flattering, but not hopeless. The unwelcome truth is clearly stated that we cannot expect to regain the lost trade without some sacrifice. In concrete terms we cannot hope to sell more than we buy, yet our own producers, in both country and city, will suffer a set-back because of certain purchases. Can we pick out of the many offerings of goods a list of things which may be imported without disaster, in payment for goods which we have in super-abundance, or soon may have, such as cotton, tobacco, pork, automobiles, and farm machinery? The alternative is a nationalistic plan charmingly advocated by Crowther and Peek, and supported cordially by the manufacturers of dyes, steel products, aluminum wares, *et cetera*. Farmers in great numbers, yet somewhat doubtfully, acquiesce in this, especially the dairymen, the fruit growers, and the beef and wool producers.

Thus the objectives consist in a pretty general broad gauge statement of welfare, present and permanent, to be attained through a series of specific plans, neither good nor bad in themselves. Long-time welfare implies conservation; it may be helped by better farm credit and easier and safer ownership of farms; by an improved type of tenancy; by better housing. Immediate welfare requires a better balance of production in relation to market demands. It involves industrial revival rather than agricultural limitations.

No one objects to planning as an ideal, but planning carried out to the full, means authority, and economic democracy will, under such pressure, degenerate into some brand of regimentation for which several new and as yet more or less strange sounding words have been devised. The New Deal planners predict that this ex-

treme stage of planning will not be necessary, or at least that it is not now contemplated. The objectives, and the means of their realization, seem thus far, in some vital respects, to fail to harmonize. Nationalization means a loss of advantage in division of labor and economy of resources which no logic or sophistry can gainsay. The political opponents of the New Deal are, themselves, now in a situation where some real planning, rather than a claim to being (and especially to having been) the apostles and exponents of prosperity, is indicated.

Contrary to the general view, which is pessimistic on the subject, I have personally a great deal of faith in the rehabilitation of an important measure of foreign trade. The exportation of three billion dollars' worth of goods, January-November, 1937, is not beneath contempt. Incidentally, we imported appreciably less during that time, thus conforming to the old regime, rather than to our recent position as a creditor nation. The belief in, or hope for, an important revival of international trade is based on the fact that good weather, and good crops, have contributed greatly to the apparent, but brief, experience of many countries, in feeding themselves from their own fields. Likewise in the doubt that the peoples of these countries will be content to pay such prices as self-sufficiency is demanding, coupled with grave doubts that the prospect is as bright as pictured with respect to our own transition from a surplus to a self-sufficing nation, may question the inevitability of the isolationist view. There is likewise room to question the probability that the present political entities of all our neighbors are likely to last for many years without fundamental change. Finally, the recent announcement of Secretary Hull's progress toward a reciprocal agreement with the United Kingdom is the most heartening news, of its kind, since the genesis of the New Deal.

Discussion by G. F. Warren

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There are innumerable things on which we have had enough experience so that we have reached general agreement. In general, we have found that the national government can wisely aid in road construction, education, and research. Few expenditures of the national government have been so productive as expenditures in these fields. Roads are one expenditure that is a good military expenditure, and equally good in peace times. The Federal Land Bank System is generally approved. It is desirable that the cooperative features of these banks be developed as rapidly as possible. Since the federal and state governments originally owned all the land, they had to control the policies of land settlement. Some serious mistakes were made, particularly in breaking up lands that

should have been kept in permanent forest or in public range. The best way to correct these mistakes is to return some areas to public ownership. Most persons will agree with the majority of the general objectives given by Dr. Tolley. Any of these and innumerable other questions might be discussed, but the topic that is pre-eminent at this time is that of crop control. There are many matters that should be given careful analysis before a permanent program of crop control is adopted.

(1) The Division of Crop Estimates is doing excellent work with the limited funds available, but much more accurate data are necessary if these estimates are to be used as a basis of crop control.

(2) The figures ordinarily quoted are acreages harvested, whereas it is acres planted that represent man's plans. The winter wheat planted for the 1925 crop was 40,920,000 acres. Production was 401,116,000 bushels. The next year, a slightly reduced planted area produced 631,950,000 bushels. In 1933, a larger planting produced 350,792,000 bushels.

The five-year average area planted to cotton from 1928 to 1932 was 41,424,000 acres. This produced an average of 14,667,000 bales. In 1937, the area planted was 34,383,000 acres or 17 per cent less than the five-year average, but the production was 18,746,000 bales. With 17 per cent less acreage planted, production increased 28 per cent. With the yield per acre planted in 1923, this year's planted area would have produced only 9,423,000 bales—just about half of the actual production. The major variable in American crop production is the weather not the variation in acreage from year to year.

(3) Under competitive conditions, types of farming are constantly changing. Some farms and some states expand production of certain things and others contract. These amount to sweeping changes. They steadily increase efficiency by getting production of a crop in areas that are best adapted to it. Even if a public official knew how to shift quotas between states and farmers, I do not see how he could cut the quota in a region that is having a hard time to make a living and give it to a more prosperous area. Government control will tend to freeze production in present areas. We might keep inefficient areas in production just as regulation keeps inefficient branch railroads in operation.

(4) Control of production or marketing is not a sufficient means for price control. A cotton crop of 17,978,000 bales in 1926 was worth 12.47 cents at December first farm prices, but a smaller crop in 1931 was worth only 5.66 cents. Could any conceivable control of production or marketing have prevented this price collapse? Efforts to fix wage rates, prices of farm products and the like are primarily an outgrowth of the instability of money. To attempt to change arbitrarily the whole price structure by operating on each detail is a hopeless task. If we had a dollar of reasonably constant purchasing power we would not have agitation for crop control. Society, as we know it, cannot continue to function if we permit such violent fluctuations in the whole level of prices to continue, because such violent fluctuations distort the balance in prices.

(5) We have, in this country, a very highly developed granary system in the channels of trade as well as storage facilities on the farms. Our biggest granary for storing corn is in livestock. I have seen no evidence presented to indicate that we are especially in need of increasing either the facilities for storage or the quantity carried over of cotton and wheat. These products are normally stored in the channels of trade rather than

on the farm. It is, of course, desirable in the arid areas for the farmers to hold enough wheat so that seed will be available in case of crop failure. I think that it is desirable that farmers in the western part of the corn belt hold more corn on the farm in years when it is abundant. Therefore, reasonable loans on corn in the farmers' cribs are desirable. This might somewhat increase the amount held over, but more important, it would tend to keep corn on the farm where it may be needed. The regions that are subject to frequent crop failures often ship corn out one year and ship it back the next year. These dry regions are also good places in which to store corn because it keeps well. Corn is a very difficult and expensive crop to store.

How much it will pay to increase the amount stored is a question. We do not live in Joseph's time. Transportation is sometimes cheaper than storage. Years like 1881, 1894, 1901, 1934 and 1936 do not come very often. I have seen no conclusive evidence to indicate that they are likely to be more frequent in the future than in the past. Rather than store too much, it may be better to depend on imports and the use of substitutes in the unusual years that rarely occur. If one purpose of storage is to increase the supply and reduce prices in a short crop year, we might in such a year reduce the tariff. Economically, this would probably be cheaper than excessive storage, and politically, it might be just as easy as to release stored grain. The Farm Board found that government activity was very popular when they were buying, but anything but popular when they were selling.

No storage system could have met the corn situation in 1936. The crop in 1934 was the poorest yield per acre ever recorded. Had there been a stored supply, it would have been used in 1934 and there would have been no chance to build up a new supply by 1936 as the 1935 crop was not a large one.

If the government wishes to experiment with crop and marketing control, I think that it would be much safer to do the experimenting with minor crops such as tobacco and vegetables. Diversion of a large proportion of the small acreage of minor crops has a much less serious influence on the production of major crops than is caused by the reversed process. Also, mistakes on a perishable crop can be more quickly corrected.

(6) Can any administration stand the criticism that it will get if it takes on the responsibility for the control of production, if there is a short supply due to the weather? In case of shortage, will it not be forced into the same attitude that has developed in other countries, of saying that the farmers have failed to support the program? If we are to have compulsory crop control, will we not be forced to the next step of compulsory production and serious penalties for not producing?

(7) If we are to have quotas for marketing, what is the farmer to do with that which he is not entitled to market? It would be a very difficult thing to convince farmers that it is a crime to sell to neighbors. The normal result of such restriction began to appear during the days of the AAA when farmers began to inform on each other as to what happened to the hogs that were slaughtered on the farm. One of the serious effects of restricted production, sales quotas, and the like, would be the development of a system of spying on one's neighbors. This is most highly developed in Russia. One of the most serious effects of the NRA and the AAA policies, under whatever form or name they may be carried out, is the arraying of man against man, class against class, and region against

region. Committees of farmers, committees of manufacturers, labor committees to prevent people from producing and selling in a manner to which we have been accustomed for ages makes too many new crimes of things that have always been virtues.

(8) I will merely mention the question of costs. How great these will be as the control of one crop compels the control of another, we can only guess.

(9) Proposals for control of agricultural production usually accept the monopoly theory, whether realized or not, for the argument is commonly used that since the farmer is not closely organized he must have legal compulsion to control production in a manner in which monopoly is supposed to do it. We have enough natural monopolies to more than engage our capacity to deal with monopolies without trying to create any monopolies. Our success in handling railroads and public utilities has not been so spectacular as to warrant moves to extend governmental regulation by compelling monopolistic practices. Government regulation has not made the railroads or other regulated industries particularly happy. We began with regulating rates and were inevitably forced into regulation of wages, capital structures, etc. Already we have had a number of proposals to restrict freedom of the sale of farm land. If the government is to take over the responsibility for the quantity of crops produced, will it not be forced to take a hand in the regulation of wages and working conditions for farm labor, the sale of land, tenant contracts, etc.? I realize that some persons will say that this is just what ought to occur. My point in raising the question is that some persons who do not wish this sort of thing to occur are proposing moves that may bring it about.

The NRA and the AAA were both based on the theory of monopoly. In those industries and occupations where competition existed, group committees were organized to establish codes and quotas. You recall that not only prices, but the hours that the plant operated, the privilege of enlarging the plant or putting in new machinery, as well as crop acreages were all under control.

The worship of monopoly is a social disease that has many manifestations. It is based on the belief that monopoly is efficient. It is the backbone of socialism, communism and fascism. In a few minutes discussion, it is not possible to present any array of evidence, but I will state my conclusion that monopoly is inevitably inefficient, whether it is government or private. There are many big business men in America who wish to buy out their competitors, not because they believe monopoly is efficient, but because they wish to limit competition. They are afraid of the efficiency of the competitive method of production. I believe that any person who has made an extended study of the details of farm management will agree with me that under any sort of monopoly or even corporation management, it would take about twice the present labor force to produce the agricultural products of America. I agree with Dr. Tolley as to the social importance of the family farm. It is also economically important because it produces so efficiently. It is through the competitive system that we have found it possible to expand production per capita so as to provide the phenomenally high standard of living which this country has —a standard in material things that no other country has ever approached.

Monopoly is not only inefficient in production, but since it lacks com-

petitive standards, neither management, labor nor the public has any way of knowing whether the business is properly conducted. Monopoly is, therefore, politically weak. Mere bigness is often a menace for this same reason, as well as because of inefficiency. A business can be too large as well as too small.

We must have control of, or government operation of natural monopolies. The number of these grows faster than our ability to handle them. I would try to maintain the competitive system in as large an area as possible, and put legal obstacles in the way of monopolistic practices.

This is not merely a negative proposal. Various units of government will continue to take on new functions, as they have taken on parcel post and city water works in the past, but this procedure is best done gradually. New natural monopolies, like electricity, must be regulated and unnatural monopolies should be prevented from developing. If one believes in a competitive society he welcomes the introduction of automobiles and trucks which provide competition with the railroads, even though they seriously injure the hay and oat business. We were forced into the regulation of railroad rates because they were monopolistic. Now, some persons would regulate truck rates to prevent competition. This is an entirely different point of view. Those who believe in a competitive society welcome such competition, but, of course, would regulate safety devices and the like. The automobile has provided such complete competition with passenger traffic as to eliminate most of the necessity for the regulation of passenger fares.

(10) I am also disturbed by the national consequences of too great centralization of power in Washington. At a time when the British Empire is giving its Dominions greater freedom, we are moving in the direction of trying to make an empire uniform. We have conditions that approach the diversity of the British Empire—diverse as to race, climate, and economic conditions. I believe that the success of the union of states has been in no small measure due to the number of things that the central government let alone so that they could be handled differently according to local circumstances. I fully realize that under modern conditions new things develop that require national action, but I would reluctantly and slowly pass things to the central government. If a reluctant attitude is taken the force of circumstances will drive things into the central government faster than that government is able to develop men and machinery for handling them. The attempt to bring everything under central control, instead of strengthening the central government, is in serious danger of weakening it, by arraying region against region.

I am glad that Dr. Tolley emphasizes the importance of maintaining democracy. One of the essentials for maintenance of democracy is to maintain respect for and patience with deliberative procedure. A wave of criticism of parliaments has swept over the world because they debate and delay. It is desirable that Congress debate thoroughly all the laws that it passes. It is not a loss of time if it discusses a subject thoroughly and then fails to legislate. I do not count that day lost whose low descending sun sees no law making done. The orderly processes of government take time if wise decisions are to be reached. It is easy to make unwise decisions quickly.

Another way to loose democracy is for the legislative body to meet and delegate its authority. This has been effective in destroying democracy in a number of countries.

BUSINESS COMBINATIONS AND AGRICULTURE

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I do not need to call to your attention the great disparity between agricultural activity, the bulk of which is carried on by individual farmers with at most a few hired workers, and the huge corporate giants which carry on so much of the non-agricultural activity. Elsewhere I have published figures which indicate that in 1929 over 49 per cent of the assets of non-financial corporations were controlled by 200 huge enterprises—railroads, utilities, manufacturing enterprises, distributing enterprises, and a few enterprises supplying services. By 1933 this concentration had markedly increased, something like 56 per cent of the assets of non-financial corporations being in the control of 200 companies. While these figures only apply to that proportion of the national economy that is carried on by corporations, the big corporations constitute a very important element in our national economy. Somewhere in the vicinity of a quarter of the wealth of the country must be in their hands.

Let us try to think of the whole national economy and envisage the role of the farmers and that of the big corporations in the setting of the whole national producing machine. Most of the productive activity of the country can be divided into government, big corporations, medium and small business, and farming. It is not possible to give accurate figures for the proportion of the economy which each of these constitutes. Partly, accurate data is lacking and partly, the basis of measurement is not clear—should the relative importance of the different parts of the economy be measured on the basis of wealth controlled, national income produced, persons gainfully occupied or some other basis? However, without being too specific it is possible to give a rough idea of the division of the economy into these four parts. Government, federal, state and local, constitutes a large chunk of the economy, perhaps a fifth or sixth of the whole. The 200 big corporations constitute roughly a quarter. Medium and small non-farm enterprise constitutes roughly two-fifths while farming constitutes roughly a sixth. Thus when the farmer—a small enterpriser—is not dealing with other farmers or with government, he must to a major extent be dealing directly or indirectly with the huge corporations since they occupy nearly forty per cent of the rest of the economy.

Yet even these figures do not present the full degree of the busi-

ness combination which the farmer faces. The figures of corporate concentration given above, are concerned primarily with legally independent enterprises. Actually a considerabe amount of informal combination exists as legally independent enterprises present a common front to prospective buyers or sellers. The frequency with which the Federal Government has received identical bids or such items as cement, steel bars, steel sheet, and steel pipe, suggests that often legally separate companies are not in fact operated as completely independent enterprises. There can be no question that as a result of corporate concentration and informal business combination the farmer is faced with a high degree of business combination.

This business concentration can be made more vivid by considering some of the industries in which the farmer is particularly interested. This can be done by using figures prepared by the Bureau of the Census and published by the Twentieth Century Fund which indicate, for various industries, the proportion of the wage earners who were employed by the largest three or four companies in the industry in 1933. Take the farm buying end first. The figures show that when measured by employment 64 per cent of the agricultural implement industry was in the hands of four companies; 63 per cent of the motor vehicles in the hands of three companies; 62 per cent of rubber tires; 32 per cent of petroleum refining; 25 per cent of all fertilizers, each in the hands of three companies. Here at the buying end the farmer is faced with concentration.

Concentration on the selling end is no less frequent. 99 per cent of the wage earners employed in making tobacco into cigarettes are employed by four companies. 63 per cent of the persons making tin cans used for canning farm products were employed by three companies. 44 per cent of the wage earners engaged in making condensed and evaporated milk are employed by four companies. One-third of cotton seed oil cake and meal was handled by four concerns; approximately one-third of the poultry killing was done by four concerns; 27 per cent of sausage making and 24 per cent of the cheese making. Thus the farmer deals with big business in things he needs to buy to operate his farm and is likely to be dealing again with big business when he sells his farm products. Nearly every item with which the farmer is concerned involves the big railroad corporations and farm financing may bring the farmer into contact with one of the big financial companies. The whole function of farming is performed in an economy the rest of which is dominated by big business. What is the meaning of this

business combination for the farmer? It has two quite different meanings for the farmer, one concerned with monopoly profits and the other concerned with markets.

The subject of monopoly profits is an old friend. In the early colonial days monopoly profits were discussed in connection with the granting of corporate charters. At every period since, there has been discussion of monopoly profits.—The Granger movement which culminated in railroad legislation and the Populist movement which was in part reflected in the Sherman Act; the trust busting days of T. R.; and the cry against monopoly profits today. I do not need to expand on this subject. Undoubtedly the existing corporate concentration has resulted in monopoly profits. But there is a considerable question whether for the farmer monopoly profits are the most significant result of corporate concentration. After all, in 1931 to 1934, the big corporations were making little profit and many were suffering great losses so that in those years at least, monopoly profits as such cannot have been of significant volume. Yet in those years, the farmers were receiving extremely low incomes and corporate concentration appears to have been to a considerable extent responsible.

This brings us to what is to me the most significant implication of corporate concentration so far as the farmer is concerned, namely the effect of this concentration on the market for farm products. With the exception of cotton, the main market for farm products is within the United States. In 1935, 90 per cent of the farm income was obtained from American consumers and only 10 per cent from exports. If we leave cotton out of the picture over 95 per cent of farm income came from American consumers and less than 5 per cent from exports. Thus, to a major extent the American farmer is dependent on the non-farm population within this country for his market. This means that he must depend primarily on the industrial workers and their incomes if he himself is to get a fair income from his farm products.

Now I believe that deficiency in the market for farm products in the depression years, and the depression itself, are closely related to the existance of business concentration. It is possible to have business concentration that has not carried to the point where significant monopoly profits are made yet that has carried to the point where the characteristics of economic functioning are profoundly altered. As I have elsewhere pointed out, inflexible administered prices are an almost inevitable result of concentration and reflect the shift in the relation between the individual producer and the market. When concentration in relation to the

market has carried sufficiently far the individual producer can exercise a degree of influence over price itself. The enterprise develops a "price policy" and controls its production in terms of the demand for its products which develop under that price policy. This means that production rather than price becomes the more flexible factor—in sharp contrast to flexibility of price in the case of farm products. One can hardly imagine a wheat farmer having a "price policy" for his wheat. He takes the market price or doesn't sell.

Now inflexible administered prices have always been known. I don't doubt that search in the ruins of ancient Egypt would disclose examples of administered prices which were highly inflexible. Likewise economists have long been familiar with such prices. Adam Smith's writings have been regarded as an effort to break down the inflexibility of guild control over prices. Yet our traditional economic analysis has been based on the assumption of perfectly flexible prices. Earlier writers have abstracted from inflexible prices and shown how an economy in which all prices are perfectly flexible could be expected to work. No one that I know of has assumed a high degree of inflexibility in prices and shown how such an economy might work. My own theoretical analysis suggests that such an inflexible priced economy might be expected to work like the very dickens. If production started to increase it would tend to increase until the economic engine was racing at a high and uneconomic level. If production started down it would continue down until some new factor entered the picture. Instead of an economy always tending toward optimum production as would a flexible price economy, an inflexible price economy could be expected always to tend to depart from optimum production if by any chance it gets close to that desirable state. I do not go into the theory back of these statements because my particular conclusions are not important. What is important is that we actually have an economy operating to a significant extent through inflexible administered prices; that we need to understand how such an economy differs in its operation from the flexible priced economy of traditional economics; and, finally, if the inflexible administered prices are a significant impediment to full use of resources under present conditions, that means be sought to reduce their disrupting influence. Actually, to date, very little thought except of an emergency character has been spent on discovering how to make compatible the inflexible prices of big corporate enterprise, a free market system for agriculture, democratic procedures, and effective use of resources. Until this problem is squarely faced and

solutions sought, we cannot say what type of policy is most appropriate.

From the point of view of the farmer, the problem of farm income is essentially the same as the problem of jobs and income for the industrial worker. Both are dependent on the full-time functioning of industry as are also the profits for investors. Monopoly profits are a secondary factor compared to the better prices for farm products which would result from full employment and income in the non-farm part of an economy. The solution of the farm problem lies in large part in the field of industry. It would pay to lay aside the traditional antipathy of farmers toward big business as such and seek to discover just what its effects on economic functioning really are. Only in the light of such emotion-free analysis can policies be developed which will maintain the advantages of big enterprise where they exist and eliminate the disorganizing influences wherever they arise.

PRICES AND THE AGRICULTURAL PROBLEM

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Farm prices have played an important role in the discussion of the agricultural problem by agricultural economists, a role more important than an early history of the collection of farm price data by the Bureau of Agricultural Economics would suggest. Nat C. Murray initiated the collection of farm price data in order to utilize more completely existing facilities of the Bureau. The predominance of inquiries concerning prices received by farmers for their products suggested to Mr. Murray that the collection of information regarding farm prices would be useful. In order to distribute the work of the Bureau more evenly throughout the month, Mr. Murray decided to collect farm prices as of the 15th of each month, since data concerning production were being recorded as of the first of each month.[1]

Nat Murray began the collection of data on farm prices in 1907. At first he did not have much support in the new work, and when he was away from Washington the farm price schedules frequently were not mailed to price reporters. By 1908, however, the work was well established and has been continued ever since. Thus, the effort of an earnest government worker to improve the efficiency and usefulness of the Bureau of Statistics is, in part, responsible for the fact that the period July, 1909 to August, 1914 now has historical significance, and that these months form the "base" period for the calculation of the "parity prices" for agricultural products, except tobacco.

How would the agricultural situation be described if no data on prices were available? Under that circumstance would a President who alleges that one-third of our population is ill-fed, ill-clothed, and ill-housed induce Congress to agree by joint resolution to make farm legislation its first order of business? Would this President, when favorable weather and absence of insects combined to produce the largest cotton crop on record—despite a relatively small acreage, consider it urgent to pass legislation limiting the production of a raw material commonly used in clothing the people?

If the farm problem were considered without reference to prices, would a Secretary of Agriculture support a plan to restrict production even under so alluring a name as "Ever-Normal Granary," after he had reported that:

[1] Nat C. Murray, address to Taylor-Hibbard Club, Madison, Wisconsin, Jan. 14, 1937.

"If all families could afford diets similar to those ranked as fully adequate by the Bureau, and if all families able to buy good meals made food choices similar to those now made in first-rate diets, the results would be of national import. American stamina and health would be raised to definitely higher levels. American farmers would be called upon to supply larger amounts of certain products and their income would be increased. There would be a demand for at least a 20-per cent increase in milk, vegetables, and fruits; about a 15-per cent increase in eggs; and considerably increased quantities of meats, breads, fats, and sugars."[2]

Unfortunately the Bureau of Home Economics did not report upon the amount of cotton required to abolish frayed collars and cuffs, and patched overalls. It is safe to surmise that the realization of such a "goal" would perceptibly diminish the size of the cotton "surplus." Nevertheless, the findings of the Bureau with respect to how people are fed do suggest that the President—if he were judged only by his allegation that one-third of our people are ill-fed—would be considered somewhat more conservative than his predecessor.

If findings such as those reported by the Bureau of Home Economics were made paramount in the determination of "goals" and if the ideal of better utilization of our human and physical resources rather than "price analysis" were dominant in the formulation of "action programs," what would be the result? Before attempting to answer this query, the past results of "price analysis" should be appraised.

Prices have been given the leading part in most analyses of the farm problem. As a result, "fair-exchange value" and "parity prices" have been the objectives of agricultural programs. When price is given primary consideration in the analysis of an economic problem, the "law of supply and demand" frequently becomes the "law of supply," and the explanation for falling prices is found in increased supply. Another conclusion derived from giving primary consideration to price is that the decline in price is due to a change in the quantity of money—either the absolute quantity or the quantity relative to the volume of goods to be exchanged.

These conclusions are the ones which have most frequently been accepted by agricultural economists in their analyses of the agricultural problem. The farm problem began when prices of farm products fell over 50 per cent between June, 1920 and June, 1921, and it became more severe when prices, after remaining relatively constant for almost a decade, again fell almost 50 per cent between June, 1930 and June, 1932. The farm problem has been thought of in terms of low prices of farm products, and the emphasis in sug-

[2] Henry A. Wallace, *The Report of the Secretary of Agriculture*, 1937, p. 44.

gested solutions has been either on reduction in the supply of farm products or upon an increase in the supply of money.

The first solution is based upon the hypothesis that the principal cause of changes in the prices of farm commodities has been changes in their supply, and that reduced supplies would result not only in higher prices but also in greater total values. The Administrator of the Agricultural Adjustment Administration has given expression to this hypothesis as follows:

> "The farmers in Texas and the South learned very early that, almost without exception, they received more for a crop of moderate size than they did for a huge crop. The 17,000,000 bale crop of 1926 brought $200,000,000 less than the 13,000,000 bale crop of 1927; the 17,000,000 bale crop of 1931 returned the ruinously low income of $483,000,000; the 16,000,000 bale crop of 1914 only $600,000,000."[3]

The Administrator could have said that the large 16,000,000 bale crop of 1925 brought $950,000,000 more than the 11,000,000 bale crop of 1915, and the small 8,000,000 bale crop of 1921 brought only one-half as much as the 14,000,000 bale crop of 1928. Such a statement would have been equally as true as the first one and as completely lacking in significance.

If the cotton crops of all the years within the range of the above statement are ranked according to the value of the crop, the average value of the five crops of smallest value is $607,000,000; the average size 13,250,000 bales. At the other extreme, the five crops of largest value average 12,890,000 bales in size and their average value is $1,685,000,000. Thus, while the average value of the five crops of greatest value is over two and one-half times the average value of the five crops of smallest value, there is little difference in their average size. Of the remaining eight crops of intermediate value, the four of greater value brought almost 25 per cent more than the four of lesser value. There is, however, practically no difference in the average sizes of the two groups. While such an analysis proves nothing, it strongly suggests that some factor other than change in the size of the crop has been the important cause of change in the value of the cotton crop.

Even though changes in supply have not been the important factor influencing changes in the value of the cotton crop, it is, of course, possible that a modification of supply by some "action program" might increase the value of the cotton crop under the then prevailing conditions of demand. Especially might this be true in situations where supplies were considerably in excess of average.

[3] H. R. Tolley, "Farm Problems and Farm Policies," address at College Station, Texas, July 24, 1936.

If the emphasis had not been on price, would the Agricultural Adjustment Act with its provision for "adjustment" of the production of agricultural products have been passed in the spring of 1933? There are reasons to believe that it would have been. Prominent among these reasons is the then widely held belief that our agricultural plant was producing too much, as evidenced by the following citations.

Dr. Hibbard, whose appraisal of the Agricultural Adjustment Act is sympathetic but certainly not exuberant, in contending that a new land policy is imperative, has said,

"Now with agricultural production in excess of national needs not only at present but equal to what will be needed after we have reached a much higher mark in population, and, moreover, with a potential output easily twenty-five per cent greater than at present, on the same area, we take stock of our acres and arrive at the conclusion that we moved too fast in bringing them under the plow."[4]

The Federal Farm Board antedated the Agricultural Adjustment Administration in advising farmers to "Grow Less—Get More."[5] It supported this advice by saying:

"One thing successful manufacturers learned a long time ago was that they could not make money when they produced more than they could sell at a profit. So they adopted a policy of adjusting production to demand, at the same time doing everything they could to increase the demand."[5]

While the Farm Board placed the emphasis on supply, they at least recognized the existence of demand, but this recognition had no apparent effect upon the Farm Board's recommendations.

Perhaps the largest mass conversion to the dogma of "over-production" came when the Republicans wrote their 1932 platform. That document committed "The Seventeen Million" to the efficacy of production control, when the Republican platform writers, unaware that supply and demand commonly balance without political assistance, wrote,

"The fundamental problem of American agriculture is the control of production to such volume as will balance supply with demand."[6]

Upon the basis of this creed these platform writers planned as follows:

"We will support any plan which will help to balance production against demand, and thereby raise agricultural prices, provided it is economically sound and administratively workable without burdensome bureaucracy."[6]

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[4] B. H. Hibbard, "A Long Range View of National Agricultural Policy," JOURNAL OF FARM ECONOMICS, Vol. XVI, No. 1, January 1934, p. 21.
[5] Federal Farm Board, Circular No. 2, November, 1930.
[6] Republican Platform, 1932, *Current History*, August–September 1932, pp. 630–40.

In the fall of 1932 the voters apparently felt they could dispense with qualifications concerning economic soundness and burdensome bureaucracy. As a result of this forbearance, congressional action sponsored by the other party made "parity prices" the official objective of national agricultural policy. The techniques for attaining "parity prices" were to be the improvement of marketing conditions and the adjustment of agricultural production. This "adjustment" was to be the counterpart of the "flexible" tariff. While movement in two directions was to be possible, it was undoubtedly recognized that for the attainment of "parity prices" movement in one direction only would be required.

Even those who accredit our agricultural distress to the loss of foreign markets ascribe to the doctrine that we have too much. Is not the reciprocal trade agreement program production control in attenuated form? Our own tariffs are not lowered on the grounds that we have too few of certain products or that the protective tariff policy nourishes monopoly. Instead of this we bargain with prospective customers on the theory that we have too much. The flag flies proudly when a cargo of prunes starts its journey to the palates of our foreign customers, but it still flutters disconsolately when a boatload of foreign steel threatens to reduce the cost of domestic construction. The principle of "buy dearly and sell cheaply" still appears to be the desideratum of international trade. It has been argued that increased exports of industrial products will aid the farmer. The experience during the late 1920's when increased industrial exports were made possible by loans to foreigners does not proclaim the beneficence, to farmers, of such exports. Our more recent experience of increased exports financed by imports of gold tends to confirm the results of the venture of the foreign loan era.

The contention is that payrolls will be increased if factories operate to make goods for export. These increased payrolls may enter the market to bid for the available supply of farm products. This should help agriculture. On the other hand, increased payrolls may enter the market to bid against the farmer for industrial products. This may hurt the farmer. Since these increased payrolls arise from the production of goods for export, the domestic supply of industrial goods is not increased. Thus, the wage earners who produced for export would bid against the farmers for a fixed supply of industrial commodities. Under this circumstance would agriculture gain? Of course the situation would be different if increased industrial exports were paid for by increased industrial imports. Then the total supply of industrial goods would be en-

larged. But should not credit for any benefits which may accrue to agriculture from such a program go to the increase in imports, rather than to larger foreign sales?

While the over-abundance of agricultural products has been referred to frequently, the dearth of non-agricultural products is seldom mentioned. After his exhaustive studies had revealed the great extent to which the production of industrial products had been reduced, Means chose to place emphasis on price, and the phrase "inflexible prices" became important in current economic jargon. Had he chosen to emphasize production rather than price he might have spoken of "flexible production" and the book *The Modern Economy in Action* might appropriately have been called "The Modern Economy's Inaction."

The scarcity of alternatives was another reason why a program of production control was almost inevitable. The contrast between the "economics of abundance" and the "economics of scarcity" is exemplified by comparing the multiplicity of agricultural economists' criticisms of the action programs which have been initiated with their suggestions of what should be done for agriculture. A virile opposition party is said to be a requirement of a successful political democracy. A critical opposition party may be, in like manner, an asset to "economic democracy." Nevertheless, mere opposition will not supply the essentials of an action program, and it is difficult to concur in the opinion that no modification of our economic arrangements is required. It is not the function of the economist to decide what should be done. He should, however, present the probable consequences of the various possible alternatives.

That agricultural economists are not prepared to present the probable consequences of alternative courses of action is indicated by the fact that "objectives" are still a subject of discussion. Perhaps this emphasis on objectives is an attempt to invalidate Keynes' definition of economics as knowledge without purpose, a definition which has recently been paraphrased to state that economists have switched to purpose without knowledge. Especially is it doubtful whether or not progress in the presentation of alternatives will be rapid if objectives no more definite than one recently proposed are accepted. I refer to the following:

> "The long-run welfare of the nation as a whole should be the all-embracing objective, the basic criterion by which specific policies should be appraised."[7]

[7] Joseph S. Davis, "Observations on Agricultural Policy," Journal of Farm Economics, Vol. XIX, No. 4, November, 1937, p. 864.

Allusion to the welfare of the nation as a whole seems to infer that the state is an agency to be served rather than an instrument of service—a concept which seems to be more compatible with the dogma of the totalitarian state than with the tenets of democracy. At least such an objective does not seem usable in an economy ruled by "competition" and "bargaining" as defined in an elementary economics text. Competition is defined as consisting of "two or more persons, or groups of persons, *striving* against each other for the same economic advantage," while of bargaining it is said, "The two parties to a bargain are *striving* for different things."[8] "Competition" and "bargaining"—both defined by using the word *striving*—are supposed to control the economic order, which the "New Deal" is attempting to resuscitate from the near-drowning it experienced as a result of the "planning" of the "New Era." It appears, therefore, that "collectivity of conflicting interests"[9] characterizes economic society better than does reference to the "general welfare."

This suggests that alternative proposals should be considered with respect to how they will affect particular groups in this "collectivity of conflicting interests." If clarification is to be achieved, must not each proposal be weighed in terms of the individuals or groups who may be affected rather than in terms of the general welfare? It certainly would be possible for policies to be adopted that would be favorable to all groups except farmers. Perhaps that has been generally true in the past. At least, the question has been asked,

> "Why should the farmer always be the victim of back to the country movements, colonizing of soldiers schemes, and new homestead legislation on our dry or swamp lands? The flourmill industry has never been debilitated by gifts of free mills from the Government, as the farming pursuit was by the gifts of free homesteads a few decades ago."[10]

Perhaps this question should be asked again, for while legislation has been passed, with almost universal approval, to help tenants become owners, and while government credit agencies encourage people to borrow money so as to become farmers, no provision for supplying unemployed automobile workers with a factory has been seriously proposed.

Another belief that has arisen from emphasis on prices in the analysis of the agricultural problem is that which ascribes to our monetary system all unfortunate circumstances which agriculture has experienced. The program based upon this belief, which

[8] Black and Black, *Production Organization*, p. 341.
[9] Charles A. Beard, "Behind the New Deal," *Saturday Review of Literature*, December 22, 1934, p. 381.
[10] Wilbur O. Hedrick, "The Curse of a 'Bumper' Crop," *Outlook*, December 27, 1922, p. 760.

probably has gained the largest following among agricultural economists, is the one that would juggle the price of gold rather than jiggle the discount rate as a treatment for all ills of the economic order. Available experience indicates that both treatments are of the same order of futility.

The hypothesis that raising the price of gold will raise farm prices, to the advantage of farmers, has been supported by an abundance of statistical data and statistical technique. Nevertheless, an examination of a small sample from this abundance of data may raise a question as to the validity of the hypothesis. The hypothesis is defended, at least by inference, in two articles, "Five Factors in Price"[11] and "Estimated and Actual Changes in Prices of Farm Products."[12] In each of these articles the actual December 1 farm prices for a number of farm products are compared with the "expected prices." Three of the "Five Factors in Price" are used in calculating the "expected prices." These are (1) change in the supply of the commodity, (2) change in the value of gold, and (3) change in the price of gold. The authors state that two of the factors they recognize as affecting price are omitted from the analysis but conclude that, "It is, however, interesting to note that consideration of these three factors alone goes a long way towards explaining prices."[11]

The fact that the formula expressing the relationship of price and supply used in the second article is different from the one used in the first raises a question as to how far these three factors do go in explaining price and as to the validity of the hypothesis that changes in the price of gold would be effective in aiding agriculture. These formulas previously had been published among 221 formulas in "Interrelationships of Supply and Price."[13] Six of the formulas among these 221 relate to the United States production of corn and the United States December 1 farm price of corn. Each formula is given both as "unrevised" and "revised." Thus twelve possibilities are available. "Expected prices" based upon all twelve possibilities are given in Table I. The range of these "expected prices" suggests that "tests of significance" are important in all attempts to substantiate hypotheses by statistical technique. It is also noteworthy that one of the factors omitted from the analysis is change in the demand for the commodity. Thus, this program, like the program based upon control of production, gives no attention to the demand blade of neo-classical scissors.

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[11] Warren and Pearson, *Farm Economics*, No. 84, February, 1934, p. 2023, Cornell University.
[12] Warren and Pearson, *Farm Economics*, No. 87, January, 1935, p. 2099, Cornell University.
[13] Warren and Pearson, "Interrelationship of Supply and Price," p. 126–142, Bulletin 466, Agricultural Experiment Station, Cornell University.

TABLE I—THE EXPECTED FARM PRICE OF CORN, UNITED STATES
DECEMBER 1, 1934

Formula number*	Method A**	Method B†
	dollars	dollars
65	.99	.59
66	.83	.50
67	1.30	.76
68	1.20	.70
69	.90	.61
70	1.45	1.14

* Interrelationships of Supply and Price, G. F. Warren and F. A. Pearson, Cornell Bulletin 466, March, 1928, p. 130–131.

** Method used in Bulletin 466. The "unrevised" formulas predict the purchasing power of corn as a percentage of the average purchasing power of the preceding five years from x—production of corn as a percentage of the production of the preceding five years. For 1934 x is 55.

† Method used in *Farm Economics*, January, 1935, p. 2105. Here the "revised" formulas are used to estimate the percentage change in price expected from a given percentage change in supply. The expected percentage is corrected for changes in the price and in the value of gold, and then used to calculate the expected price.

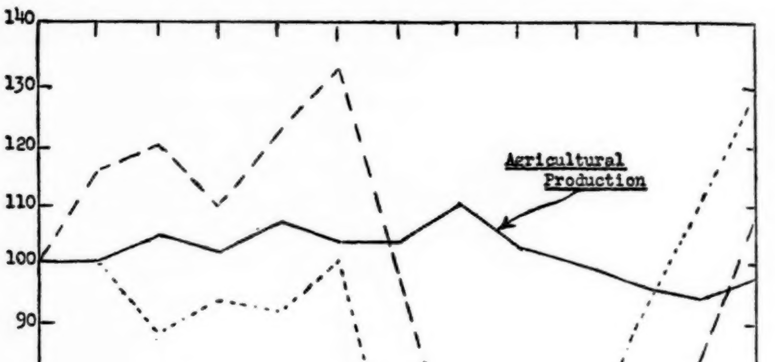

FIG. 1. Index Numbers of Purchasing Power of Net Cash Farm Income, Industrial Production (Durable Goods Only), and Agricultural Production, United States, 1924–1936.

How would the agricultural situation be described and what programs would be proposed if prices were ignored? One possible description is shown in Figure 1. Since no index of the physical volume of goods purchased by farmers is available it was not possible to ignore price completely. The line showing what is called the "purchasing power of net cash farm income" shows index numbers of "cash income available for operator's labor, capital and management" including rental and benefit payments[14] divided by the index numbers of "prices paid by farmers for commodities."[15] Of course prices were used in constructing the index numbers of agricultural[16] and industrial production.[17] Despite these imperfections the emphasis is on production rather than on price.

A definition of surplus once suggested by Dr. Ezekiel seems to interpret this chart.

"A surplus of farm products might be taken to mean that for some reason too much of some farm product or products had been produced—too much, that is, to return to the producers as much as their time and resources would have been worth if directed to some other use. A surplus of one product, therefore, would mean a deficit of some other; if there were not, the other product would have paid better than the one in excess. Similarly, a surplus of a group of products, such as farm products as a whole, would mean that some other group of products as a whole was relatively short—that producers of the other products were being more adequately paid for their work."[18]

Three years later, again discussing agricultural surpluses, Dr. Ezekiel said,

"Farmers in older producing territories, so situated that they cannot utilize the new methods, may find their margin of profits reduced or eliminated as a result of the lower prices. Yet with all their capital tied up in their farms, with no training except for farming, and with no better alternative evident to them they may struggle along for years, reducing their standards of living, impoverishing their soil, and living on their capital, while their buildings decay and their livestock dwindle away."[19]

These two comments seem to express the conclusion suggested by the analysis based upon production rather than on prices. We have too much of some things not absolutely but only relative to the great scarcity of other things. This situation persists because those producing the produce of which we have too much have "no better alternative evident to them." Certainly the fact that, "In

[14] U.S.D.A., Agricultural Outlook Charts, Demand, Credit, and Prices, 1938, Chart 1.
[15] U.S.D.A., The Agricultural Situation, November 1, 1937, p. 24.
[16] U.S.D.A., The Agricultural Situation, January 1, 1937, p. 3.
[17] U.S.D.A., Agricultural Outlook Charts, Demand, Credit, and Prices, 1938, Chart 9, (arithmetic average of monthly data).
[18] Mordecai Ezekiel, "Kinds of Agricultural Surpluses," Mimeographed publication, Bureau of Agricultural Economics, 1927.
[19] Mordecai Ezekiel, "The Problem of Agricultural Surpluses in the United States," *Proceedings of the International Conference of Agricultural Economists*, 1930, p. 75.

a severe depression the unemployed seek refuge on farms, but not in response to demand for their services there" does not support the contention that in this country there is "effective liberty to move from place to place and from one occupation to another."[20]

An analysis based on production rather than on price leads to the conclusion that what is needed is the creation of alternative opportunities of employment and production. It is rather incongruous that, relative to their numbers, persons directly responsible for the production control programs for agriculture have been the most active in suggesting such alternatives. At least Chester Davis while still Administrator wrote of "Underconsumption of Goods—A Challenge to the Nation,"[21] and Dr. Ezekiel proposed an alternative in his book *$2500 A Year*. If emphasis on production rather than price leads to the conclusion that reduced demand is the primary cause of the farm problem the agricultural economist should set up alternative methods of increasing demand. Such emphasis may cause those concerned with foreign trade to cease pondering the reduction in exports of farm products and speculate on methods of increasing imports of industrial products. If this leads to concern over industrial unemployment they may recall that meager industrial imports did not insure employment in 1932. The conclusion may be reached that the loss of a large part of the domestic market, caused by industry's inability to maintain operation was more important than the loss of the foreign market—that industry's failure to buy foreign raw materials may have been a factor in the loss of our foreign market for farm products. The breakdown of our own industry may have caused rather than have been caused by our loss of foreign markets.

Increasing the production of our own industrial plant appears to offer greatest possibilities of increased demand for farm products. If such is the case agricultural economists should consider the probable consequences of various programs for accomplishing such an increase—direct as well as hortatory. Such an approach would not confine itself to considering only the characteristics of the corporation as an instrument of production, it would also consider alternatives to the corporate form. Likewise in marketing the inquiry need not be limited to detailing minutia of existing marketing organizations. The investigation would be extended to other possible organizations. It might even go so far as to consider alternatives to Boards of Trade and Stock Exchanges as effective methods of conducting the nation's business.

[20] Joseph S. Davis, "Observations on Agricultural Policy," Journal of Farm Economics, Vol. XIX, No. 4, November, 1937, p. 867 and 863.

[21] Chester C. Davis, "Underconsumption of Goods—A Challenge to the Nation," G-30 Agricultural Adjustment Administration, January, 1935.

Discussion by H. J. Stover

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A congressman (now ex-congressman) from a university district in the state of California once made the following remark: "This business depression is not an economic problem. It is financial." Mr. Anderson, not as a political representative from a university district but as a staff member from an institution of higher learning contends in effect, "The agricultural problem is not a price problem. It is a demand problem."

The difficulties which Mr. Anderson encountered in attempting to analyze the agricultural situation without taking cognizance of prices may account for the fact that he failed to give a definition of demand in which price is ignored. I suspect, however, that, like many another economist, he fails to differentiate between demand and consumption.

Since less than fifteen per cent of Mr. Anderson's paper is devoted to an exposition of his suggested solution of the farm problem and very little of that contains any evidence in support of his contentions, this discussion deals almost wholly with his critique of the ideas of others. The chart which he presents contains some very interesting information but where is the analysis of it? Must the chart speak for itself?

Mr. Hoover has been blamed for the depression of 1929; Mr. Roosevelt, for the recession of 1937; and the "Old Deal" Democrats, for all the depressions prior to 1929. Now, upon Nat. C. Murray who initiated the collection of farm price data in the United States 30 years ago falls the responsibility, in part, for the fact that the period July, 1909 to August, 1914 forms the base period for the calculation of all "parity prices" except tobacco. Some one must, of course, be blamed for the concept of "parity prices" and for all that goes with it but why pick on Mr. Murray, —especially for the exception of tobacco?

The question is asked, "How would the agricultural situation be described if no data on prices were available?" The answer, of course, depends upon what Mr. Anderson means by "no data." Does he mean no regularly published series such as those for which Mr. Murray is, in part, responsible or no price data of any kind whatsoever? The answer, if he means the former, he will find in farmers' diaries written in the pre-Murray days. The quotation from the cotton speech of the AAA Administrator, with dates adjusted, might well have come from one of those old diaries. The answer, if he means the latter, he might find in *Robinson Crusoe*.

In discussing the theory of "More-for-Less," as applied to cotton, Mr. Anderson points out that if the sample is increased from four selected years to eighteen consecutive years, there is little difference between the average size of the five crops of largest value and the five crops of smallest value. To him, such an analysis "strongly suggests that some factor other than change in the size of the crop has been the important cause of change in the value of the cotton crop."

Mr. Anderson did not pursue the matter further but, if he had, he would have learned, among other things, the following: The cotton crop of largest value was in 1919 when the wholesale price index registered 202 per cent of 1910–1914. The cotton crop of smallest value was in 1931 when the wholesale price index registered 107 per cent of 1910–1914. An average wholesale price index of 172 was associated with the five crops of largest

value; an average wholesale price index of 150, with the eight crops of medium value; and an average wholesale price index of 115, with the five crops of smallest value.

In discussing the monetary theory, Mr. Anderson reversed himself and chose to proceed from a large sample to a small one. These are his words:

> The hypothesis that raising the price of gold will raise farm prices, to the advantage of farmers, has been supported by an abundance of statistical data and statistical technique. Nevertheless, an examination of a small sample from this abundance of data may raise a question as to the validity of the hypothesis.

The small sample selected for testing the hypothesis was the farm price of the single commodity, corn, in the single year, 1934, when the supply of corn was 55 per cent of the average for the preceding five years, a figure lower than for any year prior to 1934. The lowest figure prior to 1934 was 68 per cent in 1901. The test was made by applying twelve different formulas to the data which, of course, gave twelve different results. These results are presented in tabular form and, without any reference whatever to their relative reliability, set forth as evidence in support of the contention that our monetary system has nothing to do with the agricultural problem.

Discussions of policy objectives often degenerate into a "play" upon words and this is no exception. The objective, "long-run welfare of the nation as a whole," is attacked by Mr. Anderson because it infers "that the state is an agency to be served rather than an instrument of service." Obviously, to him, the word "nation" denotes the government. He would substitute the expression "collectivity of conflicting interests" which to others of us sounds much more like a reference to the government than does "general welfare of the nation."

In conclusion, let me say that while I agree wholeheartedly with Mr. Anderson in his desire for emphasis on demand and increased production, I fail to see how prices can be ignored. Admittedly, some agricultural economists who emphasize prices do have as their objective the securing of a larger share of the national income for farmers, at the expense of other members of society. Others, however, consider that some sort of balance in the price structure is essential to a proper functioning of the economic system in order that there may be larger real incomes for all groups.

DISADVANTAGED RURAL CLASSES[1]

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Until recently the agricultural policies of the Federal and State Governments were addressed to that perennial abstraction known as "the farmer." Major policies conceived in terms of this abstraction operated mainly to the benefit of the middle and upper classes. Thus, even before the county agents became busy administering the "Triple A" and other national programs, they were able to render technical aid to only a fraction of the farmers, and mainly to those whose social and economic status enabled them to attend public meetings. The extension program for home making also reached directly only a small fraction of the farm homes occupied by "disadvantaged groups." Agricultural bulletins and newspapers have directly benefited only that part of our agricultural population with the ability and the time to read. Educational statistics show that only a small proportion of the population in the slums of rural America have the ability to utilize written information. The elementary rural educational system has not been adapted to the needs of the major part of our poorest farm people, and few boys and girls of the disadvantaged groups attain the stage of high school attendance. The Smith-Hughes high schools and 4-H Club work in a degree have served to correct the limitations in our conventional educational system, but even these worthwhile programs in many instances have not reached the most needy boys and girls, whose low economic and social status isolates them from the groups which participate in projects, camps, and field trips. Similar criticisms may be justly made of the public systems of farm credit preceding the New Deal, the cooperative movement, the "Triple A" program, and other institutional arrangements designed to advance rural welfare. Although some of the benefits of these programs have tended to seep down to the disadvantaged groups, this process has not been extensive.

The severity of the recent depression, aggravated in extensive areas by serious deficiency in precipitation, served to direct the attention of the rapidly awakening social consciousness of the Nation to the disadvantaged agricultural groups. The New Deal Administration has developed direct relief to needy rural families, work relief, rehabilitation, resettlement, debt adjustment, migratory labor camps, retirement of submarginal land, and the tenant loan program, all more or less aimed at reaching the "dis-

[1] In assembling material for this paper the writer was aided by Messrs. Marshall Harris and Douglas F. Schepmoes of the Bureau of Agricultural Economics.

advantaged" agricultural classes. These programs were developed rapidly under emergency conditions. They were administered by staffs hastily assembled. They were characterized in a measure by serious mistakes in execution and even in conception. It is easy, however, for critics to give undue emphasis to the mistakes of these new programs. Out of the emergency programs there are being developed an experienced personnel, a more adequate comprehension of the problems, and increasingly realistic policies and procedures. There is danger that the Nation may permit the deficiencies of programs hastily formulated to obscure the urgent need for and the practical possibilities of dealing constructively with the problems of disadvantaged rural groups.

Extent and Character of the Problem

But what are these disadvantaged groups who exist under excessively low levels of living and intolerable social conditions?

First, let us make clear that we are not talking about persons whose mental, moral and physical make-up unfit them for continuity of honest effort. It is true, these personal disabilities may largely result from economic and social environment, particularly in the formative years; and therefore, such individuals are most numerous among the disadvantaged rural groups. But a large proportion of the members of such groups are probably generically normal human material. They could be industrious if freed from hookworm; they could be thrifty if given economic hope; they could be efficient if provided with adequate training and opportunity.

Proceeding from this point of view, then, let us recognize the following major groups: (a) sharecroppers and tenants, (b) agricultural laborers, (c) heavily indebted owner-operators, (d) farmers stranded on submarginal land, (e) farmers on holdings of uneconomic size, and (f) rural youth "backed up" on farms. These groups are not mutually exclusive and not all members of each group are in the seriously disadvantaged class. Excluding the last-named group entirely and allowing roughly for overlaps, a thumbnail estimate of the aggregate number of seriously disadvantaged farm families or bachelors dependent on their own labor is 4,000,000 to 4,500,000, probably comprising two-fifths of our agricultural population. I am not including poverty stricken and disadvantaged rural groups not engaged in agriculture, such as fishermen, lumberjacks, miners, etc., since they are not the derelicts of the agricultural system.

Let us consider each group briefly.

Tenants and Sharecroppers.—Of the almost three million farm tenant families, a considerable fraction, especially in the North, cannot be classified as extremely disadvantaged. Thousands of farm operators find renting from a good landlord—frequently from relatives—a satisfactory means of acquiring the use of land, and many farm owners owe their start to the opportunity of renting a farm.[2] Tenants in the Middle West are less differentiated as an economic and social class than is the case with southern tenants and croppers. Their tenure status is frequently one of deliberate choice, and they are handicapped to a lesser extent than in the South by lack of education, incapacity for independent operation, lack of thrift, and other personal disabilities. Even in the Middle West and other northern states, however, there are many thousands of tenants and croppers who may be regarded as excessively disadvantaged.

Sharecroppers in the South are the most disadvantaged group of tenants. The conditions under which they work offer little opportunity for advancement out of the lowest living standards found in American rural life—meager and ill-balanced diet, crowded living conditions and miserable housing, few sanitary conveniences and little medical care, widespread debilitating diseases, excessive ignorance and inadequate access to educational advantages. The sharecropper's small cash income goes year after year mostly to repay credit advances for food and clothing, fertilizers, and miscellaneous farming supplies, advances secured mainly by the forthcoming crop and bearing "interest" at rates varying from ten to thirty per cent per annum, and in exceptional instances higher. Given the lack of capacity for autonomous operation on the part of the sharecroppers which the system itself has perpetuated, there has persisted a more or less intensive direction and control by landlord and merchant. The opportunities for exploitation, however, are unduly great, although the system has been characterized also by high risks to the landlord. It breeds nomadism and instability. In general it has failed to stimulate thrift and progress in self-direction. Consequently, croppers as a class, as well as the major portion of the other southern tenants, exhibit no notable economic and social progress since the Civil War. Moreover, the system has impoverished the natural resources of extensive areas.

Agricultural Laborers.—According to the 1930 Census, there

[2] It has long been recognized that farm tenancy is most extensive in the highly specialized cash-crop areas of the South and the Middle West. About two-thirds of all tenants in the United States are in the South, where in many counties over 80 per cent of the farmers rent the land they operate; three-quarters of a million or 40 per cent of these are classed as sharecroppers. The area with the next highest percentage is the heart of the corn and wheat belts, where about 50 per cent of all farms are operated by tenants.

were 2,733,000 paid farm laborers in the United States.[3] Not all agricultural laborers, to be sure, are seriously disadvantaged. Some are boys living with parents in comfortable circumstances and working for wages to obtain pocket money, college expenses, or initial capital. Unmarried laborers employed by the month on family farms are frequently in a less precarious economic and social position than other groups of farm laborers. A probably decreasing number live in the employer's home, almost like members of the family. A large percentage of agricultural laborers, however, are dependent largely upon occasional employment within the vicinity in which they live.

In addition to these is the large number who migrate long distances in search of casual employment, variously estimated between a million and two million men, women, and children. The largest number move along the Pacific and Atlantic coasts, following the fruit, beet, and truck farming harvests.

During most of the nineteenth century migrants from foreign countries with dense populations and low standards of living constituted a substantial proportion of the farm labor forces. In recent years, however, annual additions to the labor group have been predominantly native born, many of whom have come from submarginal farms located in the Great Plains, the subsistence farms of the Ozark, Ouachita, and Southern Appalachian Mountains, and the cut-over lands of the Lake States and other areas, including many thousands dislocated by drouth.

A recent study representing a sample of this class of labor found that they had a median net yearly income of $110 and $124 in 1933 and 1934, respectively. The perquisites are of much less significance than in the case of the monthly hired-man type mentioned above. The lack of security, and of decent living conditions among the majority of these workers constitute a serious social menace.

The agricultural laborer in general has been excluded from labor legislation. Neither the Social Security Act nor the National Labor Relations Act applies to farm labor. The workmen's compensation laws of 17 states exclude agricultural laborers, and the laws regulating hours of work and wages of women do not apply to agriculture. Fifteen states exclude agriculture from the minimum age provisions for employment of children, and in the other 33 states it is only limited as to school hours. Attempts to unionize these groups also have been largely frustrated.

Heavily Indebted Farm Owners.—About 11 per cent of all mort-

[3] Because the 1935 Census was taken in January, the month of slack employment, the figures for 1930 more nearly measure the number of agricultural laborers than do the 1935 figures. These data do not include members of owners', tenants', croppers', or laborers' families who work without wages.

gaged farms in the United States are indebted for more than 75 per cent of their current value, and about 5 per cent, in excess of full value. These percentages would be much higher but for the large number who have become dispossessed through foreclosure (26 per thousand farm families, in 1936) or voluntary adjustment with creditors. In June 1935, there were 138,000 of these heavily indebted farm owners receiving federal relief.

Farmers Stranded on "Submarginal" Land.—Land use surveys indicate that there are some 550,000 farm families living on types of land covering more than 100,000,000 acres,[4] which, under normal prices and usual methods of management, cannot yield them a reasonable standard of living. Of these about 30 per cent belong to the class of disadvantaged tenants already discussed. Many also fall in the class of heavily mortgaged owners. This group of farmers on submarginal land has been attempting for years to cultivate soil which was never suitable for farming or which has deteriorated beyond restoration. A recent survey of families on land purchase areas of the Farm Security Administration indicated that over 80 per cent had a gross income, not including relief, of less than $400 per annum, and approximately one-third, less than $100. In February 1935, relief was being received by 30 per cent of all rural families in the arid portions of the Great Plains, and about 66 per cent of the families in the submarginal land purchase areas.

Farmers Handicapped by Holdings of Uneconomic Size.—This group overlaps considerably the group on submarginal land, for the unduly small farms tend to be concentrated, largely, though not exclusively, in the poorer agricultural areas.[5]

In some areas farmers have been able to increase the size of their farms by purchasing or renting additional land; but in general this is impracticable because of lack of capital or because the entire area is overpopulated. Statistics show that this group contributes large numbers to the relief load.[6]

Youth "Backed up" on Farms.—According to Dr. O. E. Baker, during the depression which began in 1929, over 2,000,000 young people have been "backed up" on farms who under pre-depression conditions would have moved to the cities. Between 300,000 and

[4] This class of farms is found in the hilly and severely eroded areas of the South and East, in the forest and cut-over areas of the South, in areas of the Lake States and Pacific Northwest characterized by infertile soil, and in those areas of the Great Plains which, by reason of inadequate and undependable moisture or poor soil or both together, are unsuitable for cropping.

[5] The more important areas in which a considerable number of the farms are too small to provide an adequate standard of living are in the western Great Plains, the more erosive parts of the western and southern corn belt, the general farming areas of the Ohio Valley and southern Illinois, much of the cotton and tobacco growing areas of the South, and numerous irrigated areas in the West.

[6] In 1935, in the spring wheat area, the average size of farm for owner-operators on relief was 338 acres as compared to 745 acres for all owners; and the average size of farm for tenants on relief was 310 acres as compared to 483 acres for all tenants. In the winter wheat area, the average size of 146 acres for owners and 115 acres for tenants on relief is in contrast with 423 and 304 acres for all owners and tenants, respectively.

350,000 young men on farms, are reaching the age of 18 each year. During the decade 1920 to 1929 about one-half of them left the farms for the cities, but during 1933 and 1934 the net movement from farms was only about one-third that of the average movement prior to the depression. These young people who, from the point of view of national demand for agricultural products, have not been needed on farms, constitute a large disadvantaged group.

The concentration of these young people lacking opportunity tends to be largest in the poor farming areas, where birth rates are high, educational advantages seriously deficient, and opportunities for earning a livelihood from farming extremely limited. In such areas farms are being divided, abandoned farms reoccupied, and forest land cleared by the young people who are marrying and starting homes. In some Southern Appalachian counties the increase in the number of farms during the last five years has been 50 per cent, and one-third to two-thirds of all families have been on relief.

Why the Problem Developed

"The poor ye have always with you," says the prophet; and "the destruction of the poor is his poverty"; also, "from him that hath not shall be taken away even that he hath." These sayings imply that the problem of rural poverty is not new; to which we may agree. They also imply that it is inevitable and cumulative. To this we need not agree; though we may recognize that from the extreme disabilities of the disadvantaged groups only the exceptional individual can hope, or even will hope, to escape by his own unaided effort.

Some of the causes of the situations briefly described above have their roots far back in our earlier economic history. Some of the causes are common to all groups; others are peculiar to certain of the groups. Some are inherent in the operation of the capitalist system; others are intrinsic in the land and agricultural policies that have shaped our rural social economy.

In large part the roots of southern rural poverty developed out of the poisonous slime of African slavery and the systems of labor utilization and control which replaced the slavery economy. In part they are inherent in the excessive commercialism and specialization of southern agriculture—with its aftermath of soil exploitation—which were only in part concomitants of slavery and the plantation system. In part, it may be that the poverty and wretchedness of the poor whites is a social inheritance from thousands of white convicts and ne'er-do-wells shipped as servants in

the colonial period; but even more these conditions are attributable to the corroding influence of slavery.

The problem of the mountain people and hill farmers also reaches back into the formative years when hardy frontiersmen with self-sufficing habits settled in locations which remained long isolated from the streams of commercialism and urbanism. This group constitutes a problem of poverty now because the passing of game and timber resources has removed important props of their characteristic economy; revenue agents have impaired another; soil exhaustion, induced partly by high birth rates and population pressure, has further narrowed the already narrow economic basis of life; and finally, the infiltration of urban standards has made the mountaineers conscious of poverty, and the outside world aware of their disabilities. They comprise a large segment of the group of owner farmers on submarginal land, and a lesser number of disadvantaged tenants.

Capitalism, with its emphasis on the survival of the strong, has ground beneath its wheels millions of small farmers, as well as small shopkeepers and petty business men. Such people are not well adapted to meet the hazards of a commercial economy, nor fortified against the extreme fluctuations of prices and profits. They do not usually have recourse to the bankruptcy and reorganization procedure from which the big business man normally emerges with a standard of living consistent with continued personal efficiency. The *kleinbauern* and petty shopkeepers, to be sure, exhibit some resistance to economic shock by lowering their standards of living and postponing needed repairs and replacements; but this frequently means impairment of capital, increased burden of debt, malnutrition, debilitating disease, and deprivation of educational advantages. These, in the long run, spell further economic, psychological, and social deterioration, and a lessened capacity to meet the next shock. Thus, while the majority of southern croppers and tenants have never known a higher status and the hill farmers' lot has worsened gradually, there are thousands of tenants and hired laborers who have been forced into a hazardous and extremely disadvantaged position from a higher economic and social status by recurring depressions, narrowed markets, drouth, increased population pressure in rural areas due to urban unemployment, and growing tax burdens.

Finally, one must recognize that mistaken policies—mainly mistaken land policies—must bear much of the discredit for creating the serious problems of the disadvantaged groups. The homestead policy enticed thousands of families to lands submargi-

nal for arable farming with the offer of holdings too small for anything but a bankrupt and soil-depleting type of arable farming. Similarly, it scattered thousands of families over the West on grazing homesteads only one-fourth as large as the minimum requisite for a decent livelihood. A *laissez-faire* attitude toward land settlement permitted the dispersed occupancy of the northern Lakes States, in large measure on poor land. A similar *laissez-faire* attitude allowed promoters to develop and float bonds for uneconomic irrigation and drainage projects, many of which should have been left to muskrats and migratory waterfowl. Federal reclamation policy developed projects with a hopelessly excessive capital structure. Private credit, supplemented by the Federal Land Bank System, facilitated the occupancy of submarginal land and the creation of uneconomic holdings. Forests and game, essential to economic prosperity in particular communities, were permitted to be wantonly destroyed, and the range resources of the public domain to be seriously depleted.

The responsibility of land policy for the plight of the disadvantaged agricultural workers, however, involves even more basic elements than those mentioned. In large measure the trouble grows out of lack of social restrictions on the use and disposal of land. When the writer was a graduate student, thirty years ago, we were wont to hail allodial tenure in fee simple absolute as the crowning achievement of economic evolution. We were still under the spell of the eighteenth century reaction against mercantilism and the relics of manorial tenures, a reaction which fused land, along with other classes of economic goods, into that homogeneous ocean of readily transferable and acquirable values so essential to the full flowering of capitalism.

While there remained free land to settle, while much of the nation's agriculture was still of a pioneer type and much of the remainder presented a nice balance of commercial agriculture and comfortable self-sufficiency, while standards of living and methods of production were still simple and required a minimum of money outlay—in short, throughout most of the nineteenth century—the evil results of a system of tenure under which land may be used and misused, bought and sold, with virtually no regard to social consequences, were far less obvious.

Our system of land tenure frequently has been justified because of the extreme mobility of American life. It is precisely because of this mobility that the system is yielding such a highly unsocial crop of results. In fact, we may credit our free and easy system of disposing of landed property with much of the excessive mobility,

instability, and insecurity of American rural life as well as for a long train of other consequences—excessive land speculation with the demoralizing succession of booms and depressions, systems of tenancy socially injurious in their characteristic manifestation, and the frustration of our feeble efforts to realize our American ideal of home-owning farmers operating family-size farms. Nearly a century ago George Henry Evans and his associates in the promotion of the Homestead policy realized this and advocated restrictions on the mortgaging and transfer of homesteads, restrictions, however, unhappily disregarded.

It has been customary to attribute to tenancy many of the evils of rural life, such as soil exploitation, instability, and insecurity. Until the Civil War, however, there were few tenants in plantation areas of the South, but southern soils were scourged into sterility by operating owners. This was true also in other parts of the Nation. The Report of the President's Committee on Farm Tenancy emphasized the fact that tenancy itself and many of its evils are an outgrowth of our system of land ownership. Giving away land was no guarantee of continued operation by owners, as witness the fact that sixty per cent of the farmers are tenants in some of the states most recently homesteaded. Persons holding land speculatively or temporarily through foreclosure may have little concern with requiring soil maintenance by their tenants or in creating a system of tenancy characterized by stability and security. Absenteeism is generally inimical to the welfare of either land or tenant.

Lines of Readjustment

Problems of such magnitude, the evil harvest of more than two centuries of social evolution, cannot be remedied in a short period of time. It is essential, however, to start in the right direction with a unified, consistent, and steadily applied program.

At the outset, it is important to recognize that from the standpoint of readjustments the members of the various disadvantaged groups fall into two main classes. In the first class are those competent physically, mentally, and morally to pursue a normal type of commercial agricultural production on family-size farms and to maintain an intelligent standard of living. They are persons who have reached their present low economic status mainly through misfortune and the operation of ill-advised national policies. The second class consists of those born into a submerged status and lacking the various personal qualities requisite for the operation of a commercial type of farm of family size. It comprises

probably seventy-five to eighty per cent of the people in the disadvantaged groups. It should be subdivided into two sub-groups—first, those now maintaining largely a self-sufficing economy, as for instance, the hill farmers; and second, those engaged in a highly commercial type of farming, and largely unacquainted with the standards and techniques of a self-sufficing type of existence,[7] as in the case of the cotton and tobacco tenants and croppers.

The first main class constitutes by far the easier problem. Their principal difficulty is financial, location on poor land, or occupancy of unduly small farms—frequently a combination of all three. Where the difficulty is mainly financial, a program of debt adjustment and refinancing is requisite. Frequently this will require changing from the status of mortgaged owner to tenant. Where the problem is also one of mislocation and holdings of inadequate size, there is indicated action along the lines of the so-called submarginal land program, combined with a program of debt adjustment, guidance in relocation, and refinancing. In most cases, their best recourse as a first step out of their present difficulties is the renting of land under a sound type of lease which encourages stability and progress in improvement. In the case of the maladjusted areas of the Great Plains, the removal of some of the excess population makes possible the development of adequate holdings for those who remain. The land acquired under the purchase program will be employed to stimulate the formation of cooperative grazing districts, conservation districts, the adoption of constructive methods of disposing of tax delinquent land, development of adequate stock water supply and supplemental irrigation by impounding flood water, restoration of range resources, and other measures to stabilize the agricultural economy.[8]

The rehabilitation loan policy initiated by the FERA and developed by the Resettlement Administration, and the debt adjustment program of the latter—all now administered by the Farm Security Administration—can contribute much to the solution of the problems of those who require relocation, when fully integrated with the land planning and land purchase programs now administered by the Bureau of Agricultural Economics.

The weakest link in the rehabilitation program is the difficulty of inducing landowners to agree to types of leases consistent with a stable and conservative economy, and the lack of state legisla-

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[7] The term self-sufficing is not used to imply no sale of products or money income and expenditure, for this is impracticable in the modern world. Rather, it implies a major reliance on production for direct consumption.

[8] These policies are more fully outlined in the Report of the President's Great Plains Committee.

tion that will require and insure the maintenance of such types of leases. In fact, a more adequate program for the regulation of the lease contract, comparable to that developed in England and southern Scotland, is basic to an adequate attack on the problems of all the disadvantaged groups. The requirement of written leases, permitting the removal of improvements, compensation for unexhausted improvements, compensation for unwarranted termination of contract by either party, compensation or penalties for waste and deterioration, and limitations of the landlord's lien, machinery for arbitration and inexpensive and quick settlement of disputes, and an adequate supporting program of research and education are among the needful elements. Unfortunately, the requisite legislative action does not fall within the domain of federal constitutional powers, and it is not yet clear that even state constitutions can be adequately stretched to provide for such types of legislation. Means should be provided, however, whereby the Federal Government may be in a position to stimulate and give direction to state action within this field.

In dealing with the much more serious and difficult problems of the disadvantaged groups whose disabilities are personal, as well as financial and environmental, the question of direction is paramount. Shall we count on their absorption by industry? Shall we endeavor to make them into self-directing commercial farmers? Or, finally, shall we chart our course toward an intelligent type of individual and community self-sufficiency?

In theoretical economics one may conceive—and for many decades we have been satisfied with conceiving—of an industrial system so geared that it could absorb all surplus labor that could be spared from the commercial production of agricultural commodities under conditions of high efficiency. If one could look forward to the early realization of such a conception, and if it could be accomplished without the drastic fluctuations of employment which characterize the present industrial system, and furthermore, if it could provide for decent conditions of employment and living conditions—in short, if the millions of disadvantaged classes could be absorbed by industry without subjecting them to new forms of insecurity and exploitation—then our problem would be solved. The mere statement of such conditions, however, sounds millennial. Industry now has its surplus labor army, which fluctuates in volume as employment waxes or wanes but is never fully absorbed. Insecurity and exploitation are chronic despite feeble legislative efforts to improve conditions of employment. And breadlines and slums do not offer a very attractive social goal for those who would

undertake to deal constructively with the problem of disadvantaged agricultural groups.

Shall we try to steer these people toward commercial farming? Part of them are now engaged in the most extreme types of commercial agriculture—notably the cotton and tobacco tenants and croppers, as well as a large proportion of the seriously disadvantaged hired laborers. The results of decades of trial are extreme poverty and no indications of progress. Moreover, the progress of agricultural mechanization points toward the increasing economic redundancy of these classes. The principal hope of alleviation, namely, a widening of the foreign market for farm products, appears doomed to disappointment as long as nationalism continues on its present pathway. Certainly there is little hope to absorb the hill farmers and other self-sufficing groups into commercial agriculture even if their economic background and previous way of life fitted them for commercial farming. Such social experience as we have had indicates the futility of trying to convert any but the very young into successful commercial farmers.

We are forced to conclude that the soundest social goal for these disadvantaged classes is in the direction of intelligent self-sufficiency; for those now engaged in commercial agriculture, a greater degree of self-sufficiency; for those now largely self-sufficing, a more intelligent self-sufficiency, including a larger degree of cooperation, supplemented by appropriate institutional readjustments and forms of public assistance. Commercial agriculture could thereby be relieved in considerable measure from the present chronic tendencies to over-production, and could logically develop further along the pathway of increased efficiency.

Many economists and publicists have shrunk from this conclusion because they believed it to be a reversal of the pathway of progress and a movement back to more primitive standards of living and social attitudes. As to the first reason, it is obvious that it is not a reversal of progress for these classes, since for them the decades have brought not progress but deterioration, coupled with a steady impairment of the natural resources which are the basis of their life. As to standard of living, the hill farmer and the cotton cropper cannot sink much lower.

Actually, the standard of living of the hill farmer could be greatly improved if his self-sufficiency were intelligently directed; and the cropper could have a more abundant life if some of his energies could be released for self-sufficing activities. For a generation the vast resources of agricultural research and education have been pointed toward the goal of commercial production. We have scarcely made a beginning in working out modes of self-help by

the application of labor to the direct improvement of standards of living with but little expenditure of money, or in devising forms of cooperation adapted to that type of economy, or again, in creating the attitudes of mind or types of recreation and social life consistent with small expenditure. It is obvious that to move in this direction, primary emphasis will have to be placed on education. On the one hand, it will be important to teach ignorant mountain people and Southern croppers and tenants how to better their standard of living by the raising of food and its proper preservation, by providing an ample and balanced diet, by improving housing and furnishings through their own labor with but little monetary outlay; the primary elements of cleanliness and sanitation; and types of recreation and association that require little expenditure. In all of this the utmost reliance should be placed on cooperative effort in many directions, including the operation of work centers. On the other hand, education will have to be so directed as to overcome or counteract the influence of false monetary standards of consumption which measure satisfaction in terms of cost and endeavor to ape urban modes and fashions. We badly need an indigenous culture among disadvantaged rural groups and particularly an appreciation of the advantages and beauties of their environment.

A potentially influential form of education is the small loan program of the rehabilitation policy associated with technical and sympathetic direction and used as an instrument to stimulate cooperation along such lines as the ownership of equipment, including that of small work centers, ownership of breeding stock, and the non-monetary exchange of technical skills. Indeed it is possible that the loans should not be made with a view to repayment of interest and principal in cash; but, rather, extended as grants conditional on conformity to certain social policies and procedures.

We should frankly recognize the necessity for outside subsidies also to provide the type of education and the other public utilities required in such communities. If the thesis is correct that the only feasible direction for improving the lot of these groups is that of self-sufficiency, it is clear that they could not be expected to bear a large proportion of the cost of public utilities, particularly if they are to be of adequate quality.

One form of subsidy that could be helpfully continued is that of the "Triple A" program. In the main it should take the direction of payments to make possible the purchase of lime and fertilizers and other measures that will enlarge or maintain the small available cultivable land area.

In many such communities the proper teaching of birth control would be necessary to permit the alleviation of the mode of living.

The land purchase program, discreetly employed, can contribute somewhat; not by an attempted wholesale evacuation from areas that might be adjudged submarginal from the standpoint of commercial agriculture, but by the purchase of lands hopelessly deteriorated by erosion or of units with too little remaining cultivable area to build on in attempted alleviation of living conditions. Some contribution can be made through the development and protection of small local forests and of local recreational facilities that, on the one hand, will afford part-time employment and raw materials for domestic industry and, on the other hand, will bring some money into the community.

If these classes are to be enabled to maintain an economy predominantly of a self-sufficing type, it is imperative to develop a system of small holdings that will make available for each family an adequate amount of crop land, pasture and woodland for such a type of economy. Such units might be created at a total cost of \$500 to \$2,000 each for land alone. For those having opportunities in the general locality of residence for occasional employment as farm laborers, forest workers, etc., \$500 for the acquisition of requisite land may frequently be sufficient. It will be essential, also, to develop a form of tenure that will protect the size of holding from subdivision by sale or inheritance or consolidation into commercial farms, from mortgage indebtedness, and from speculative alienation. A system of tenure approximating these characteristics was recommended in the Report of the President's Committee on Farm Tenancy, but Congress saw fit to adopt a policy based on the prevailing allodial tenure in fee simple, to be established by loans for a high percentage of the purchase price. It does not provide facilities for the creation of small holdings not already in existence, and with the lack of adequate provisions to prevent speculation and maintain the integrity of holdings, it is doubtful if it promises a basis for an adequate small holdings policy.

It goes without saying that along with a social program of this type should go a particular effort to enlarge the possibilities for these disadvantaged groups to obtain a monetary income ranging normally from \$200 to \$500 per year to supplement their nonmonetary income. In part this will take the form of production of eggs, cream, truck products, small fruits, and other products which permit a relatively intensive type of economy. It may be found desirable gradually to restrict certain types of intensive farm economy exclusively to these disadvantaged classes instead of per-

mitting them to be carried on by large-scale producers. In part such monetary income will be derived from the regular types of rural employment as farm laborers and forest workers. In part it may be derived from domestic manufactures such as woodworking, rug making, and such handicrafts as lend themselves to the work center type of equipment and special skills. In part it can be accomplished by stimulating the decentralization of factory location.

The long-distance migratory farm laborers present a special problem. For the surplus of dislocated farm families not really needed by the agricultural industries which employ this type of labor, the program outlined above should be applied, diverting the surplus to regions where small holdings may be created on the basis of lower land values. For the remainder also, an effort should be made to localize the residence of a large fraction by the creation of small self-sufficing homesteads in the areas where stable employment can be afforded. For that portion of the floating labor army that must continue to float because of seasonal and annual fluctuations in employment, an effort should be made to anchor the families to self-sufficing units in areas of lower land values, and to provide for those members of the family who must travel afar for employment, sanitary labor camps of the type which the Resettlement Administration developed, supplemented by social legislation comparable to that being developed for factory labor.

In conclusion let me emphasize the importance of a definite integration of all these lines of attack on the problems of the disadvantaged agricultural groups. The New Deal efforts have been praiseworthy because they have endeavored to face the problems boldly; but they have been at times lacking in definite direction, clear cut philosophy, and especially in unification of the various lines of attack.

SOIL CONSERVATION IN EUROPEAN FARM MANAGEMENT[1]

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For a discussion of soil conservation, a sketch of the climatic influences to which the soils in question are exposed is indispensable. Europe can be divided into three distinct climatic zones: first, the mezothermal climate around the Mediterranean with winter rains and dry summers, as in much of California (climatic symbol according to Köppen, Cs); second, the mezothermal climate of western and central Europe—north of the Pyrenees, the Alps and the Carpathian mountains and west of the Vistula River—with rainfall during all months, similar to that of the middle Atlantic states (Cf of Köppen); third, the boreal climate of some mountainous areas in central Europe, of most of eastern Europe, and of Scandinavia with distribution of precipitation uniform throughout the year and heavy snow similar to that of the northern lake states (Df of Köppen).

In Europe, particularly in the two last mentioned climatic zones, more frequent changes in weather occur from day to day and from week to week than in similar zones of the United States but with much less extreme variations. This is mainly due to the high geographic latitude of Europe combined with the influence of the Atlantic Ocean, by far the warmest ocean of the world in these latitudes. In addition, the main mountain ranges in Europe run east and west, not north and south as in the United States. They do not hinder, therefore, the oceanic influences, but prevent sudden and extreme temperature changes by obstructing north and south air mass circulation.

From the standpoint of soil conservation the absence of extreme climatic variations is important with respect to the quantity and concentration of rainfall. The quantity of rainfall is not great in many important agricultural regions of Europe;[1a] but the effectiveness of rainfall is very high because the high moisture content of the oceanic air reduces evaporation. Heavy showers occur in Europe but much less frequently than in the United States as is shown by the fact that the average rainfall per day for all days during which rainfall occurs is from three to four times greater in the similar climatic zones of the United States than in Europe.[2]

[1] Paper No. 66. The Giannini Foundation of Agricultural Economics. This paper was read at the Twenty-eighth Annual Meeting of the American Farm Economics Association, Atlantic City, N.J. December 28, 1937.

[1a] In Germany, for instance, the average precipitation is 28 inches and not more than 20 inches in some important agricultural sections where grains, sugar beets, and legumes are produced without irrigation.

[2] Köppen, W., *Grundriss der Klimakunde*, pp. 218–219. Berlin, 1931.

The average relationship understates the true situation because electrical storms with an extremely heavy concentration of rainfall in a few hours such as occur frequently in the Southeast and the Middle West of the United States are virtually unknown in Europe. Since soil erosion by water is much more dependent upon concentration of rainfall than upon its absolute amount during the year, this fact is very significant.

The difference in the distribution of rainfall during the year between the three climatic zones of Europe has important effects upon the vegetation and thereby upon the speed and effectiveness with which nature prevents or heals soil destruction. The winter rains of the Mediterranean climate are sufficient for brush vegetation similar to the chaparral of California, and in some areas, for forests. However, the recuperative power of forests in the mezothermal climate with dry summers (Cs) is inferior to that in the climates with uniform distribution of precipitation (Cf and Df) which offer good conditions for the growth of forest vegetation. One might say that soil conservation in the former climate is much more a question of forest management and less of farm management than in the latter climates. For that reason and because scientific farm management developed mainly in western and central Europe, this paper deals only with soil conservation in mezothermal climates, with soft rains during the whole year (Cf climate). The term "Europe" will be used henceforth in this sense.

In spite of its climatological advantages, Europe affords many historical and present examples of soil destruction as a result of land utilization by man. It cannot be said, therefore, that soil conservation is assured through the climate alone. On the other hand, there is no other part of the world in which soil conservation has been and is more thoroughly practiced than in Europe. We must ask then what essential factors other than climate have brought about and are influencing soil conservation in Europe and what light can the comparatively young discipline of farm management throw upon their working.

First, a question of definition has to be disposed of. Soil conservation as understood in this paper means not only protection of the soil quantity, for instance against erosion, but also protection of the soil quality, for instance against the depletion of chemical nutrients or against the deterioration of texture and biological status of the soil. Soil quality is measured by the yield of crops and will be called "soil fertility."[3] Soil fertility stands for the

[3] The term "soil productivity" will not be used because it may be interpreted as meaning the economic productivity of the soil.

whole complex of external factors of plant growth—in Mitscherlich's sense—[4] at a given time and place.[5] This concept of soil fertility is the most useful, at least from the standpoint of farm management.

The central theme of farm management is the principle of optimum intensity in land utilization. If capital is regarded as a form of human effort—sacrifices in the Marshallian sense—it may be formulated as follows: In any economic community taken as a whole, land and the application of human effort must be combined in such a way that the maximum economic return for the total human effort expended results. This means that in individual enterprises the optimum intensity is reached at a point where the value of the marginal unit of human effort put into the land is equal to the value of the marginal unit of output from land use.[6] Thus, the principle of optimum intensity manifestly disregards the physical effects of the character and the degree of intensity upon the land, that is whether depletion and destruction or conservation of the soil results. Only if the marginal input economically permissible is as high or higher than the input for obtaining the crop *plus* the input necessary for the protection of soil fertility and soil fabric does soil conservation become an economic possibility at the point of optimum intensity.

The input for obtaining a crop varies with the kind of crop and with the physical and economic environment. Farm management differentiates between intensive and extensive crops. It follows from the foregoing paragraph that this differentiation *in itself* has no reference to soil conservation. However, intensive crops often deplete the soil more than extensive crops because higher yields are removed from the soil or because the more intensive working of the soil facilitates erosion. On the other hand, inputs for soil conservation are—other things being equal—economically permissible much sooner in areas in which intensive crops, for instance cotton, corn, or sugar beets, are grown, than in areas in which only extensive crops, for instance small grains and natural grasses, can be raised. Thus, one might find in the economic development of an area first a stage in which extensive crops are grown with little need for soil conservation, then a stage in which intensive crops are grown with the need for but without the economic possibility of soil conservation until finally a stage is reached

[4] E. A. Mitscherlich, *Boodenkunde für Land und Forstwirte*, pp. 2–8. Berlin, 1923.

[5] Some of these factors are controllable and some are not. The effect of some factors upon yield is well established; of other factors little or nothing is known.

[6] Needless to say, that the comparison of these values is not always made in monetary units. A self-sufficient farm family, for instance, compares directly the disutility of increasing units of work with the satisfaction the family expects to derive from an increased supply of food, clothing, and shelter.

in which inputs for soil conservation become economically possible.

The dependence of soil conservation upon the stage of intensity reached in land utilization means its dependence upon the relative scarcity of land in relation to human effort at a given time and place. The relative scarcity of land is not rigidly determined by natural factors such as climate, topography, soils, and vegetative cover, but is connected through a complicated system of action and reaction with the technical and institutional development of a given society. To trace this development in the history of land utilization in Europe will be the next step in our analysis.

European agriculture had its beginning in the neolithic age, that is between 7,000 and 2,000 B.C. Its technique did not change greatly through the bronze and early iron ages down to Roman times. The primitive tools—planting stick, hoe, and later the plow made out of stone, wood, or bone—confined agriculture to areas which could be brought into and kept in cultivation with inefficient tools. That meant that until the advent of the iron plow, the heavy soils, the thick sod of the steppes, the dense coniferous forest belts, and the extremely light soils which because of their quick exhaustion constantly required new clearings, were excluded from agricultural utilization. Agriculture thrived on the porous loessal soils and on the mellow alluvial muds around rivers and lakes. These areas were occupied by oak and beech forests which could be easily removed by girdling and fire and the open ground underneath cultivated. The natural scarcity of these areas combined with their high natural productivity in relation to the human efforts necessary for their clearing and cultivation led to a very early stability in settlement.[7]

The earliest farming system of shifting the fields irregularly when the soil became exhausted, the so-called "shifting field grass system" with 75 per cent and more of the cultivated area in fallow or grass, changed very early to the "stationary field grass system" with 50 per cent of the cultivated area in fallow or grass and with regular changes between two fields. One field was kept up to six or seven years in grain crops and the second field for the same number of years in fallow or grass.[8] In the climate of Europe aban-

[7] It might be mentioned that some facts in various disciplines point to the possibility that the European climate became slowly cooler and moister after the neolithic age. Such a development would have tended to make the defense of the open areas against the encroaching forest more difficult and would have encouraged greater stability in settlement and better soil conservation.

[8] Since Tacitus wrote his famous "Arva per annos mutant et superest ager" (*Germania*, Chapt. 26), the question of the early field systems has remained a point of discussion among historians and economists. The term "two-field system" is often applied loosely to the stationary field grass system. Far-reaching economic and historical conclusions are drawn from the fact that the cultivated area of manors and villages in many parts of Europe was laid out in two fields. From this it is implied that the two-field system must consist in cropping and fallowing the land alternately from year to year. That, however, does not need to be the case. A two-field system might consist in the following four cases, which are very different from the standpoint of farm management. (Cont'd.)

doned grain fields become covered with a luxuriant growth of weeds and grasses which furnish feed for livestock and can be returned to the soil as green manure. Animal husbandry was the most important farm enterprise in the field grass system. Its function was not only to provide milk, meat, hides, and wool, but also to conserve soil fertility on the cultivated land through the production of manure. The livestock assembled and converted the yield from large areas of grass land and concentrated it on the crop land. If stable manure was not used, manuring was accomplished by driving livestock into fenced lots during the night, at first probably for protection against predators, and by moving these lots at regular intervals. In the case of sheep, this system of manuring is common in many parts of Europe even today. Thus, a close combination of animal husbandry with field cultivation became established in the very first beginnings of European agriculture. It became the cornerstone of farming systems and will be shown as being the main cause of soil conservation in Europe.

With the increase in population under the Pax Romana and under the reign of the Franks, the demand for agricultural products increased. This resulted in a noticeable increase of agricultural intensity. The three-field system with $33\frac{1}{3}$ per cent in fallow or grass (winter grain, summer grain, fallow) became established during this time. It is an indication of the increasing scarcity of land. The restoration of soil fertility could not be accomplished any longer through resting the land for a number of years under grass cover. From now on the restoration of soil fertility had to be accomplished through actual inputs. The use of stable manure and even of some fertilizers, for instance of lime and ash, became a general practice. The manure was applied to the fallow. In addition, the fallow made a better distribution of labor possible. This was important because of the greater proportion of land in field crops. The fallow also made a better seedbed preparation and a better weed control possible, and furnished some feed during a part of the year. In spite of the feed produced by the fallow and in spite of the large production of grain straw, the fertility balance of the three-field system was entirely dependent upon natural

[8] cont'd.

(1) In the case of the stationary field grass system with a rotation of winter grains or summer grains, or both up to six or seven years, followed by the same number of years in grass.

(2) In the case of a two-year rotation: (a) grain, (b) fallow.

(3) In the case of a two-year rotation: (a) summer grain, (b) winter grain.

(4) In the case of a two-year rotation: (a) grass, (b) fallow crops, for instance beets, potatoes, or legumes.

All these forms of a two-field system existed from the oldest to modern times in many parts of Europe under conditions of open field husbandry with communal pasture on the fields as well as under enclosure. Compare for examples and sources: G. Hanssen, *Agrarhistorische Abhandlungen*, Leipzig, 1880; W. Roscher, *Ansichten der Volkswirtschaft aus dem geschichtlichen Standpunkte*, Leipzig, 1841; A. Meitzen, *Der Boden und die landwirtschaftlichen Verhältnisse des preussischen Staates*, 8 Vols., Berlin, 1868–1908. Compare for other views: H. L. Gray, *English Field Systems*, Cambridge, Mass., 1915.

meadows and upon pastures on nonplowable land or in forests.[9] Only because the livestock enterprises transformed these various forms of feed—not directly usable by man—into stable manure and thus made them available to the cultivated fields, was soil conservation in the three-field system possible.

The question might now be asked why was there an increase in intensive cultivation and only a slow extensive expansion into the unsettled public domain.

In the first place, the early iron plow was still an inefficient tool for the breaking of heavy soil or thick sod and the costs for new cultivation in relation to possible returns were still large. This was especially true on poor podsolic soils which had formed under dense coniferous forests.

Secondly, the lands around the settlements formed the "Common," the "Allmende." As already stated, these lands were an integral part of the livestock economy of the village. The change from the field-grass system to the three-field system had reduced the pasture on the cultivated lands. This made the pasture on the Common indispensable. In the communal forests, oaks and beeches furnished the feed for hogs. It was of first importance to protect them against cutting. Settlement in the Common, therefore, had to labor against serious obstacles.

Thirdly, there was no public domain in the American sense of the word. According to the law of the Franks influenced by Roman doctrines, the land outside the Common was not public property but belonged to the king personally. This seignorial right of the king and, related to it, the principle that government administration meant direct overlordship over every piece of land—"nulle terre sans seigneur"—became the basis of a political and legal organization of society which lasted for centuries. Because this organization, commonly called the feudal system, established an institutional scarcity of land and thereby indirectly influenced soil conservation, a few words regarding its functioning are necessary.

The feudal system has been common all over the world when a complicated administrative machinery became necessary for a society based on agriculture in a mainly local economy. Since land was the only tangible wealth, administrative, military, and other services to the king were rewarded with land grants called "Fiefs" or "Lehen." The grant was given at first temporarily to the person only and mostly under the condition of annual services. But soon

[9] The decrease in the amount of feed produced by the fallow in the three-field system was much greater than the mere decrease in the proportion of fallow and grass—33.3 per cent in the three-field system against 50 per cent in the stationary field grass system—indicates. The grass land in the field grass system had several years to grow whereas the one-year fallow in the three-field system produced only annual weeds or nothing at all if the fallow was worked—so-called black fallow.

it became hereditary in the hands of the laity and permanent in the hands of the Church. In the hands of the thereby created feudal lords and of the Church, the land served again to secure the services of lesser "vassals" and they in turn used it in the same way until the whole society from the king to the smallest knight was bound together through feudal ties.

Under the feudal system, new settlement could take place only with the consent or on the initiative of the feudal lord. The payment of annual rents in the form of produce and services was the result. "Free" land disappeared. Settlement had to press constantly against elastic but nevertheless effective economic boundaries. The fixed charges connected with the occupation of the new land tended to check the extensive expansion of agricultural production and to encourage a more intensive utilization of the areas already occupied.

Timber located in larger distances from places of consumption was marketable only where floating downstream was possible. Protection of the forested land in the interest of hunting became the principle of feudal forest management over large areas. The hunting ban was extended in many cases over the communal forests also. This helped to protect them but also operated later to bring them under the absolute control of feudal lords.

The feudal structure of society was based on and in turn favored the manorial organization of agriculture which dominated Europe between the 10th and the 14th centuries and with various changes continued to exist in parts of France and in central and eastern Europe until the 18th and 19th centuries. It appeared as "manor" in England, as "court," or "manoir" in France, as "Grundherrschaft" later "Gutsherrschaft" in Germany and "Krepostnichestwo" in Russia.

A detailed treatment of the history and many variations of manorialism would lead us too far afield. Essential from the standpoint of soil conservation was the fact that the cultivators of the land and their children were bound to the land which they cultivated. They had become unfree peasants or "glebae adscripti."[10] They cultivated the land in family units[11] under an open field system, lived in villages and had the right to use common pastures

[10] The causes of the change from free peasants to serfs are still disputed by economists and historians. It seems to be beyond doubt, however, that there were large numbers of slaves and half-free men among all Germanic tribes from the times of the earliest settlements on. These worked as "croppers" for their free owners. No new principle was, therefore, involved in feudalism and manorialism. The notion that there was a sudden change from an entirely democratic structure of society is not justified. On the other hand, the rigid but secure structure of the feudal system greatly increased the number of the dependent classes. Some originally free peasants and whole villages exchanged their freedom for security under the protection of feudal lords. New free homesteading became impossible and to break through the iron rules of the caste system became more and more difficult.

[11] The family unit was the "Hufe" which generally comprised 7½ or 15 hectares.

and forests as in the earliest times. A part of the manor, which was considerable in England and in the time of the "Gutsherrschaft" in Germany, was operated as the lord's home farm (demesne) with the labor of unfree tenants. The interest of the lord in the permanency of this labor supply created rules of land use for the family units of the dependent peasantry. For instance, the land had to be kept in good condition, the buildings had to be repaired, the cutting of timber in the communal forests was dependent upon the permission of the lord and the stocking of the communal pastures was restricted.[12] Offenders were dealt with before the manorial courts. The peasants themselves also were interested in the conservation of their land because their right to cultivate land was their and their children's only present and future basis for a livelihood during centuries. Since their rent to the lord was fixed, their right to cultivate the land became in many cases the source of substantial personal wealth.[13]

The influences of the feudal system and of manorial agriculture went far beyond their effect upon land settlement and land conservation during the height of their development. Both institutions planted deeply into all classes of the population an attitude towards the land of a kind which would have been brought about much later by economic factors in a free competitive economy. For the upper classes land became the key to and the symbol of, social distinction and political influence for themselves and for their children. For the lower classes, assurance of the privilege of land cultivation meant economic security and land ownership meant the supreme goal of life, guaranteeing personal and political freedom. This psychological pattern created by feudalism and manorialism lasted until the time of the French Revolution and in most countries is effective even today.

The economic conditions under which both institutions functioned also changed slowly. City markets grew up and encouraged intensive agriculture in a narrow radius around these markets on high priced lands. But transportation facilities were not sufficiently developed to justify the extensive exploitation of cheap lands at greater distances from population centers. Production to maintain a customary standard rather than production for capitalistic accumulation prevailed in agriculture until the middle of the 18th century.

Agricultural technique likewise remained unchanged until the 18th century. Improvements in the three-field system were intro-

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[12] For sources compare: E. Lipson, *The Economic History of England. The Middle Ages.* New York, 1929, p. 36.

[13] Compare R. H. Tawney, *The Agrarian Problem in the Sixteenth Century.* London, 1912, p. 56 ff.

duced but their general adoption made slow progress. More and more fallow land was used for the production of feed crops, like legumes and beets.[14] This became necessary because the carrying capacity of the three-field system for livestock, on which its fertility balance rested, was reduced through the curtailment of communal pastures by lords or by the increase of settlement. There was very little improvement in agricultural machinery. The costs of bringing new land into cultivation had certainly not decreased. On the contrary, the costs of bringing new land into cultivation had increased in relation to possible returns, because the quality of lands available became poorer. The technical developments offered no incentives to exploit cheap lands.

It is evident from the foregoing that land conservation in European farming until the end of the 18th century resulted from institutional and technical factors without anything which can be called farm management in the modern sense of the word. At the end of the 18th and in the beginning of the 19th century, a radical change took place. Leading citizens and statesmen became interested in problems of agricultural economics, and writings on farm management and land conservation appeared, which are hardly surpassed today. From now on farm management can be called modern in a double sense. Firstly, the approach was not determined by agricultural technology, by a class ideology, or by religious and ethical preconceptions as heretofore, but by economic analysis. Secondly, the subject matter, land utilization, evolved as a modern problem because feudalism and manorialism were rapidly disintegrating and economic factors in a free competitive society became more important than institutions.

In the beginning the breakdown of the old agrarian order caused land destruction in various ways. The "liberation" of serfs led to a numerous free but landless class of agricultural laborers and to a proportional increase in the area which could be operated by the lord himself for profit. This, combined with the high prices for agricultural products during the long revolutionary and war periods, accomplished a rapid commercialization of the large estates and the spreading of a "get-rich-quick" mentality. Soil deterioration on peasants' holdings became frequent also. The high grain prices had a similar effect as on the large estates. In addition, a serious decline in the livestock population made the conservation of soil fertility difficult. The livestock was not only decimated by

[14] The improved three-field system has less than 33⅓ per cent of the cultivated area in fallow or grass and in its modern form has no fallow or grass at all. Thus, there was a development from 75 per cent and more in fallow or grass in the shifting field grass system to 50 per cent in fallow or grass in the stationary field grass system to 33⅓ per cent in the original three-field system and to no fallow or grass in the improved three-field system.

wars but also through "voluntary" liquidation because the peasantry had to raise large sums to compensate their lords for the abolition of personal services and other land encumbrances. Furthermore, the disappearance of the forest ban and the division of communal and feudal forests led to a reckless depletion of forest resources, particularly in France—"la France perira faute de bois" (Colbert).[15] It was the same experience China had passed through after the breakdown of the feudal system.

Although the first result of the spread of liberalism in agriculture was land destruction, land conservation came soon into general use because it had become economically possible in Europe by the time the protective influence of feudal and manorial institutions ceased to exercise decisive influence upon land utilization. Feudalism and manorialism had served their purpose. Their institutional protection was no longer needed for land conservation. From now on land conservation in Europe could be entrusted to the working of economic factors in a free competitive economy. The input into the land economically possible or, in other words, the optimum intensity had reached a height which included the necessary input for the sake of land conservation. This fact was of utmost importance for the development of modern farm management and for its great and comparatively quick success in improving farming systems and in making land conservation a matter of course for European farmers.

Arthur Young, William Marshall, Robert Bakewell in England and Albrecht Thaer, I. G. Koppe, and Christian Schubart in Germany, among many others, are the recognized heroes of the technological revolution of agriculture, but Johann Heinrich von Thünen must be regarded as the father of scientific farm management[16] This is particularly true for the thinking about land conservation. Land conservation occupied continental farm management much more than in England because her rapidly increasing foreign trade made England more and more independent of her agricultural land at home. The technical leadership of English agriculture was a comparatively short episode in agricultural history.

Under the climatic conditions of Europe previously described, soil deterioration does not take place through washing or blowing but through a depletion of soil fertility—in the defined sense. The

[15] The depletion of forest resources in France at the end of the 18th and in the beginning of the 19th century lead to a serious increase of the damage from floods in the French Alps. During the 16th century, 60 major floods were experienced in Savoy; during the 17th century, 53; during the 18th century, 329; and during the 19th century, 1,025. Compare E. N. Munn, "The Lesson from Savoy," *Forest Worker*, July, 1927, page 16.

[16] Two Kameralists, Gottlieb von Justi and Justus Möser, can be regarded in some respects as forerunners of von Thünen.

necessity of fertility conservation led to the "doctrine of statics." "Statics" meant the equilibrium between the decrease of soil fertility through the harvest, and its increase through the application of manure and fertilizer.

The doctrine of statics created a voluminous literature and dominated farm management thinking in Europe until the latter part of the 19th century.[17] Its formulation in detail depended on the knowledge of the factors affecting soil fertility. When Thünen wrote, relatively little was known about the constituents of soil fertility. The "humus," i.e., the material resulting from the decomposition of manure and of crop residues, was regarded as the most important constituent of soil fertility. The depletion of soil fertility through the harvests and the restoration of soil fertility through manuring and through residues of crops were measured empirically by the decrease or increase in yield. The equivalent of one bushel of rye was used as the unit of measure. Thus, early farm management unconsciously took account of the combined effect of all factors of plant growth. Thünen fought vigorously against a one-sided chemical, physical, or biological interpretation of soil fertility.[18]

The main emphasis was placed on a good rotation, i.e., a rotation which combined exhausting with conserving crops. The grains were regarded as exhausting crops; conserving crops were crops which left such a quantity of residues in the soil and enabled the production of so much manure that a fertility balance was insured. The goal of good farm management was to increase the proportion of conserving crops in the rotation until the balance of the whole farm system was reached. The introduction of legumes, beets, and potatoes into the three-field system or the adoption of a four-field crop rotation like the Norfolk rotation was recommended. Under European conditions, only rye, potatoes, and certain legumes can

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[17] J. H. von Thünen, *Der Isolierte Staat*, Hamburg, 1826. Part 1, paragraphs 7A and 7B.
A. Thaer, *Grundsätze der Rationellen Landwirtschaft*. Berlin, 1809. English translation by William Shaw, *Principles of Agriculture*. New York, 1852.
A. Thaer, *Die Wertschätzung des Bodens*. Berlin, 1811.
Von Wulffen, *Versuche über die Erschöpfung des Bodens*. Berlin, 1815.
Von Wulffen, *Vorschule der Statik*. Magdeburg, 1830.
Von Voght, *Sammlung landwirtschaftlicher Schriften*, Hamburg, 1826.
J. Liebig, *Naturwissenschaftliche Briefe über die moderne Landwirtschaft*. Braunschweig, 1859.
J. Liebig, *Die Chemie in ihrer Anwendung auf Agricultur und Physiologie*. Braunschweig, 1865.
A. Mayer, *Das Düngerkapital und der Raubbau*, 1869.

[18] J. H. von Thünen, *op. cit.*, p. 77: "The objective of statics is to establish a numerical expression in order to show the loss in fertility which the various types of soils suffer through harvests and the increase in fertility which the soils receive through the addition of a given quantity of manure. As far as the doctrine of statics is concerned, it is unimportant which constituent of the manure and humus furnishes the plant nutrient and is the cause of the favorable action upon the vegetation, whether it be the water, the carbon, or the mineral material. The doctrine of statics is concerned only with the total effect of all the fertilizing materials found in the manure. Because of this, it is entirely unrelated to agricultural chemistry; figures obtained through observations and tests in regard to the effect of a given quantity of manure will remain unchanged no matter which constituents of the manure are now or will be in the future recognized as the actual nutrients. The human race would have starved had practical farming awaited complete accord on why and through what constituents manure is effective. The development of the doctrine of statics as of practical farming cannot be deferred until every problem connected with it is solved."

be grown with good yields year after year on the same land. Wheat, beets, and red clover are particularly intolerant of close succession. To grow the same kind of crops on the same land year after year was therefore condemned. A large production, a careful curing, and an economic application of manure were regarded as the basis of successful farming. The manure pile became the standard by which the quality of a farm or a farmer was and is measured. The increasing prices of livestock in relation to other farm products during the 19th century helped in this development. Still, in many regions, this meant only a decrease in the direct losses from the livestock enterprises. In such cases only the production of manure made the livestock enterprises profitable.

It is interesting to note that the problem of world-wide application of the doctrine of statics scarcely received any attention. Thünen and his contemporaries were so strongly influenced by the economic stage of their part of the world that soil conservation was a matter of course even for the founder of the theory of economic zones. The competition of agricultural zones in which soil depletion was profitable was not yet felt. This took place two generations later through technical revolution in transportation facilities.

The valuable chemical researches of Justus von Liebig resulted in a profound change in the concept of statics during the ensuing half century. The new concept meant the computation of a purely chemical fertility balance and the full replacement of chemical nutrients removed by the harvests. Since the latter could be done through the application of artificial fertilizers, the emphasis shifted from balancing the rotation and the whole farming system to methods of chemical analysis and to questions of plant nutrition. The doctrine of statics became a problem of the natural sciences rather than of farm management.

In the natural sciences, the doctrine of statics met serious opposition even during Liebig's lifetime. Aside from his belief that the plants obtained their nitrogen supply directly out of the atmosphere and not through the soil and aside from his neglect of many chemicals which proved important for plant growth, it was learned that the availability of plant nutrients did not simply depend on the quantity withdrawn and the quantity restored. In some cases it was not necessary to strive for a 100 per cent nutrient balance. In other cases, it was economical to go beyond the pure replacement of nutrients withdrawn in order to increase the yields. Furthermore, it became apparent that the chemical plant nutrients were only a part of all the factors of plant growth which make up the complex of soil fertility.

From economic quarters also came opposition to the doctrine of statics. The agricultural depression of the 70's, 80's, and 90's, which was ascribed mainly to the depletion of cheap virgin lands in the United States, called attention to the fact that the doctrine of statics did not apply to economic conditions in all parts of world agriculture. It became evident that the doctrine of statics had grown and thrived under the particular economic conditions of Europe in the first part of the 19th century. It applied only to an economic stage in which the full conservation of soil fertility was either profitable from the entrepreneurial standpoint in a laissez faire economy—as was the case when Thünen wrote—or was brought about by a relative technical or institutional land scarcity and by a conservative mental attitude towards the land—as was the case under feudalism and manorialism.

Today the economic relativity of statics is generally recognized in European farm management. This is one of the very few advances of modern farm management made since von Thünen's time. The consequences, however, are more important in the academic field than in practical farming. On the continent the effects of the agricultural depression were mitigated through strong governmental measures. The up-swing of all prices after 1896 brought about a new period of prosperity for agriculture. It remained not only profitable to conserve soil fertility but to increase it by the application of larger and larger quantities of chemical fertilizers.

Chemical fertilizers are becoming the decisive factor for soil conservation in Europe, not only because they allow relationship of the chemical nutrient balance but because they allow the production of a greater quantity of organic matter on a unit of land—meadows and pastures included. The development of modern soil biology, soil physics, colloidal chemistry, and also practical experience point to the importance of organic matter in soil conservation. Not in spite of, but because of, the increased use of fertilizers does the supply of organic matter in the form of stable and green manure again become the central problem of farm management.

As in the times of the three-field system and of von Thünen, natural meadows and pastures are valued highly, particularly if combined with crop land not well suited for feed crops, as for instance a poor, sandy soil. The value of a rotation which provides ample feed for livestock is again appreciated. In most countries, with the exception of Germany, the relative increase in the prices of animal products works in the same direction as the demand for manure. The use of green manure crops, especially if sown with the grain or after the grain is harvested as a second crop, is in-

creasing rapidly. Techniques to produce manure artificially out of straw, water, and fertilizer are also developed on farms where not enough livestock is available. The effectiveness of manure application is improving greatly. Manure is looked upon more and more as a stimulant for the biological and physical processes in the soil in addition to its beneficial effects as a carrier of plant nutrients. Smaller quantities and shorter intervals between applications are recommended. Whereas potatoes and beets still receive by far the highest proportion of the total amount of available manure, other crops including legumes and pasture receive increasing amounts to be used as a top dressing.

On many farms the manure is produced from purchased feed, for instance, Russian barley, South American maize and oats, or Manchurian soybeans. The result is an increase of soil fertility in the zones of intensive agriculture near the European consuming centers and—ceteris paribus—a decrease of soil fertility in the zones of exploitive agriculture. One might say that soil fertility tends to gravitate in the direction of its highest utility. This is essentially the same process that was observed above on individual farms. It was shown that the livestock enterprises have the function to assemble soil fertility from the distant fields or from fields where soil fertility cannot be effectively utilized and to transfer it to fields where soil fertility has the greatest economic effect. Modern transportation facilities make it possible that such a transfer of fertility is accomplished over a distance of many thousand miles. From the economic standpoint, such a transfer of soil fertility is doubtless sound. It illustrates clearly that the doctrine of statics cannot be accepted as a general principle for farm management with world-wide application. Only at a certain economic stage, will the equilibrium between depletion and restoration of soil fertility be the necessary result of a relative scarcity of land.

The emphasis on a well-balanced rotation of manure-producing and manure-consuming crops has far-reaching effects upon the terms under which farms are rented in Europe. The concepts of "cash crop" and "high profit crop" are not used very much in European farm management. The whole farming system is regarded as an indivisible unit. The net return of individual crops is appraised with regard to the effect of the crop upon the net return of the whole system. A crop which is marketed in the form of animal products or a crop which has beneficial effects upon soil fertility might in the end yield a higher profit than a crop which shows high immediate cash returns. In contracts of leases, therefore, no clauses are found which stipulate the use of a certain proportion

of the land for cash crops as one finds so often in the United States. On the contrary, the most numerous clauses in such contracts deal with the limitation of cash crops and with soil conservation. For instance, the following are common stipulations:

1. A certain proportion of land has to be used in feed crops if no definite rotation is required. The latter requirement was formerly common and is sometimes the case today.
2. A certain number of animal units have to be kept per crop acre.
3. No hay or straw from the farm is to be sold.
4. A certain proportion of the crop acreage must be manured each year.
5. Pastures and meadows are not to be broken and used for field crops.
6. A certain quantity of fertilizer is to be used each year.
7. A certain amount of feed has to be purchased each year.
8. The use of lime is restricted in the years before the lease expires.[19]

Stipulations like these presuppose, firstly, a fixed money rental, which can sometimes advantageously be expressed in a certain quantity of the main crop, secondly, a compensation to the tenant for improvements and, thirdly, a long lease. A lease of eight or ten years should be regarded as the minimum required for good farm management and soil conservation. Public and private lands in Germany are often leased for eighteen years and longer. Under such conditions, there is no reason why tenancy should be dangerous to soil conservation. In fact tenant farmers have for a long time set an example in good farm management in many parts of Europe. Tenant farming makes the unit of operation less dependent upon the unit of ownership and encourages the movement of the best man towards the best soil.

In European farm accounting, there is a trend away from cost of production studies and from the calculation of profits from individual crops or enterprises. Regardless of the bookkeeping system used, emphasis is placed on the functional relationship between farm management measures in individual enterprises and the net return of the whole farming system. The main reason for this is again the importance of the manure economy in European farming, which ties together inseparably manure-producing and manure-consuming enterprises. In this unity lies the secret of soil conservation in Europe.

In concluding, we might use our main findings to point to some features of land utilization in the United States.

Soil conservation in Europe was brought about through a relative technical and institutional land scarcity and through a conservative mental attitude towards the land long before the economic stage was reached at which soil conservation was economically

[19] Liming tends to make more plant nutrients immediately available through base exchange and through stimulating effects upon the microorganisms in the soil. "Liming makes rich fathers but poor sons" is an old German peasant proverb.

possible in a free competitive society. A technical and institutional scarcity of land virtually did not exist when the North American continent was opened to European settlement. It was a singular occurrence in world history that vast areas of fertile, virgin lands became suddenly available for people of an old civilization whose agricultural technique and transportation facilities had already reached a high development and who started with the institutions of a capitalistic economy, which had been developed only after many centuries of slow restricted economic growth in Europe. Under these circumstances, soil depletion was an economic necessity.

For the future development of the United States one might foresee several possibilities in respect to land utilization:

(1) Soil exploitation might remain advantageous in a free economy and might continue largely as heretofore.

(2) Soil conservation might become economically advantageous in a free economy and might come into general use. This was the development in Europe at the end of the 18th and the beginning of the 19th centuries.

(3) Soil conservation might be subsidized by society within a free economy. This has never been done in Europe but is being attempted in the United States.

(4) Soil conservation might be brought about through institutional limitations on land use imposed by society. Such a situation existed in Europe before the 18th century.

A combination of developments 2, 3 and 4 might take place simultaneously.

Regarding the practical accomplishment of soil conservation, four principles were clearly brought out by European experience.

(1) The importance of the manure economy (stable *and* green manure) for the fertility balance of the whole farming system.

(2) The importance of the livestock enterprises and of artificial fertilizers as the most important agents through which a fertility balance of the whole farming system can be established.

(3) The importance of a proper combination of types of land use, that is of cultivated land, permanent meadows, permanent pastures, and forests from the standpoint of feed and manure production.

(4) The importance of a proper combination of exhausting and conserving crops on the cultivated land from the standpoint of feed and manure production.

These principles apply primarily to the particular climatic zone of Europe which was discussed here. Furthermore, it should be remembered that more important than technical applicability is the mental attitude of the cultivators toward the land which they cultivate. An attitude favorable to soil conservation was bred into the cultivators of Europe during long centuries of technical and institutional scarcity of land. To breed this attitude into a new country requires patience and great educational skill on the part of those who are responsible for a far-sighted conservation policy.

FARM MANAGEMENT ASPECTS OF SOIL CONSERVATION

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How broadly should one interpret the subject, "Farm Management Aspects of Soil Conservation"? From a national point of view, conservation of natural resources is of major concern, but from the standpoint of the six and one-half million farmers in this country, who are attempting to wrest a living from the soil in their own generation, soil conservation becomes only one phase of the management problem. This is true of the ranchman of the West whose farm organization involves the use of public land; it is true of the farm owner-operator of the Midwest, who sells a considerable part of his crop; or the New England dairyman who maintains the fertility of his farm, in part, by the purchase of feed from the corn belt. Real problems arise, however, from the degree of interest the operator has in the property, varying from the transitory interest of the willfully exploitative farmer to the interest of the owner-operator who regards his farm as a heritage to be passed on to posterity in as good or better condition as when he received it.

Farm management, in its broadest aspects, means the correlation and coordination of the various factors of the farm business to provide for the maximum return, assuming that the health and efficiency of the operator and other laborers are considered, and the economic productivity of the soil is maintained or improved. The above definition assumes that the conservation of the soil is automatically a part of a good management program for a farm. Since soil conservation, however, has been overlooked in practice, if not in theory, and the soil has been permitted to depreciate, the item of soil conservation needs to be given special attention to overcome the accelerating rate of soil and plant food loss through cropping, leaching and erosion. Before returns from any farm or farming unit can be ascertained accurately for any year or period of years, an item of depreciation for the soil and productivity loss should be charged against the business, unless there is evidence that through a combination of practices and current cash outlay, the economic productivity of the soil has been maintained or improved. To show a depreciation charge for soil productivity loss in terms of definite figures is difficult, if not impossible. This, no doubt, has been the reason for not showing it as a definite expense in farm records. This does not, however, excuse the farm operator from keeping it in mind when measuring his earnings and taking it into consideration when planning the organization and operation of his farm.

Our subject may well be approached from an historical point of view, attempting to find out what relationship, if any, such factors as land tenure, size of farm, mechanizing farming, the intensity of livestock production, the proportions of soil-building and soil-depleting crops, trends in crop yields, farm mortgage indebtedness and other factors bear to the whole problem of soil conservation.

The history of farm management and soil conservation may be construed to apply to our agricultural development over the past century, or limited more especially to the past twenty-five years, or applied to the agricultural programs of the past five years. Much time might be spent on the farm management aspects of both the soil conservation program, as exemplified in the soil erosion work, and the AAA Programs, which have oscillated between crop control and soil conservation.

We do not know enough about the long-time effects of farm practices on the permanency of agriculture. Most of the Agricultural Experiment Station work has been conducted under a relatively high degree of control, which does not represent typical farm practice, or at least is far removed from practice as found in some important farming-type areas. One needs only to visit some of the southern agricultural areas of our country to be convinced that the prevailing farm practice has not conserved the soil, but rather has accelerated soil depletion. Many of our northern neighbors having less rainfall, a high percentage of grass land and frozen soil nearly half of the year have little conception of soil erosion except that gained when the dust clouds of the Southwest descended. People well informed in some lines have recently expressed surprise that the heart of the corn belt has soil problems justifying public concern.

Basically, a difficulty of the corn belt is that during the past 25 years the inroads of soil depletion have been hidden by marked improvements in tillage machinery and the better grade of work it does; by improvement in varieties of crops; and by the control of crop diseases and insects. The change from one year to the next often is not perceptible even to the man on the land, but like himself his land eventually reaches a decrepit condition. Many technical improvements in production are like temporary stimulants and are hastening the day of reckoning. One vital need is, therefore, a clear picture of what is occurring on typical farms operated under various types of organization. The solution of agricultural problems of the future must go much deeper than differentiating between soil types and their characteristics. After a half century or more of farming, adjoining farms on identical original soil types

frequently show differences in productivity which are more pronounced than the differences in the original productivity of two very distinct types of soil. It is characteristic of central corn-belt communities to find 100 per cent variation in yields from the same type of soil. These differences represent the accumulated effects of variations in farm practice, but it is conservative to say that at least half of them can be attributed to soil practices, while cases may be cited in which differences of 300 per cent or more may be attributed to the soil and its management. Substantiation of this statement is found at the Illinois College of Agriculture in the results from the Morrow plots, which are the oldest of their type in this country. Here, on soils typical of the best corn belt area, definite crop rotations have been conducted for a period of 44 years, with all practices similar except the cropping system and the handling of the soil. On the plot with continuous cropping of corn, with no soil treatment, the yield at the end of the twenty-first year had shrunk to less than half of that at the beginning of the experiment; in 1923, at the end of 35 years, the yield had fallen to one-third of the original; and during the last 14 years, yields have held fairly constant. On the plot of land growing corn and oats alternately, the corn yield at the end of the 43-year period was one-half of that when the land was first broken. On the third plot of corn, oats and clover, in sequence, supplemented with applications of manure, phosphate and lime, yields have increased by 17 per cent over a 20-year period. This is an indication of the results of destructive cropping and what can be accomplished by the application of good soil management. This simple line of reasoning leads to the conclusion that after a century of cultivation, profitable farming becomes an individual problem on each farm, with the ability of the operator varying as widely from that of his neighbor as does the productivity of their farms.

In the corn belt, where on a county basis, from 50 to 80 per cent of the land area has been rented and mainly on a one-year lease, farm operators have not been altogether illogical from a personal point of view. Repeated studies on account-keeping farms show that on the unrelated tenant-operated farms the total net income is larger than on owner-operated farms on the same type of soil. On the owner-operated farms the gross return is usually larger, but the tenant, normally getting only half of the product, cuts his costs and reduces the gross income in order to obtain a larger immediate net return although at the expense of the soil. Thus a close working relationship between the owner and tenant to maintain a common objective of good farming becomes a problem of increas-

ing importance as agriculture grows older. Transitory managerial responsibilty for the soil does not go well with an aging agriculture.

Returning to the need for information regarding the long-time effect of farm practice, trends relative to production may be taking place more rapidly than is realized. Long-time records from identical farms are destined to have a more significant place in agricultural research. The records from 64 farms for a ten-year period in east central Illinois show trends which appear remarkably consistent. These illustrate the possible value of such data when developed more extensively for each important farming-type area (Table 1). These farms are relatively highly selected as indicated by the fact that the operators have kept financial and production records for ten consecutive years. The unrelated tenant farms tend to run relatively large. Cross-section studies including nearly all farms of an area usually show the part-owner farms to be largest, followed by the unrelated tenant farms, with the owner-operated and tenant-related farms smaller but averaging nearly the same size. The net income and the income from livestock, by tenure groups, are in agreement with other more representative and more extensive, but shorter period studies.

TABLE 1. SIZE AND EARNINGS BY TENURE GROUPS ON 64 EAST CENTRAL ILLINOIS FARMS, 1926–1935

Tenure	No. of farms	Size of farm (acres)	Net income per acre	Returns per acre from productive livestock
Tenants unrelated	7	290.3	$7.84	$11.87
Tenants related	14	214.9	7.12	10.54
Part owners	15	274.1	8.17	8.71
Owners	28	198.9	7.33	14.00

A comparison of part-owner and tenant-unrelated farms, with respect to size, earnings and the amount of livestock, presents a serious aspect of soil conservation which has developed in the agricultural turmoil of the past 20 years. Up to 1920, few landlords were seriously concerned over soil conservation on our best cornbelt land. Probably the heavy grain cropping of the war years brought the need of soil conservation practices more noticeably to the foreground. As we look back, we know that low prices for farm products at the close of the World War, combined with increased farm mortgages and the high level of living attained by many farm owners during that period, were directly responsible for withholding improvements needed on the farm. As a consequence, farm buildings were allowed to run down and needed soil-building materials were not supplied. The coming of mechanized farming led many a landowner to give up a farmstead and to allow his farm to be operated by an adjoining owner or tenant who with mecha-

nized equipment was now able to handle two farms as easily as he had handled one formerly. In this connection it should be noted that there has always been a great amount of land without buildings, rented to nearby operators who were frequently owners of less than economic units. A recent Illinois study demonstrates that generally the unoccupied rented land is reduced in productivity more rapidly than the land which the operator owned or lived upon. This is to be expected; the crop from the unoccupied rented land is hauled to the premises of the operator where it is fed to livestock and the fertility recovered is usually hauled back on the occupied land. A common statement of landowners a few years ago and still heard is that "it is cheaper to own bare land rather than land with buildings." The final answer to this situation is not apparent at present but will become more pronounced from year to year. It may constitute a major problem to be met in heavy tenant areas within the next few years. Agronomists tell us that seriously depleted or eroded soils change in chemical composition and perhaps with even the best treatment can never be brought back to their original state of productivity.

For the good of agriculture some farm operators may be following too literally the economic maxim that it pays to expand in periods of rising farm prices. One needs only to turn back to 1932 to find the reverse situation, with operators reducing acreages or stopping operations when prices reached such a low level that cash outlays of tenants became greater than their share of income. In many areas it was difficult to find renters for unoccupied tillable tracts on the lower grades of land, and the improved land took precedence both in timeliness and thoroughness of operation and in crop use. The unoccupied tillable land normally produces not only smaller yields, but frequently a larger proportion of less profitable or more extractive crops. In view of the larger size of the part-owner and unrelated-tenant farms shown in Table 1, it is of interest to reclassify the same farms on the basis of size (Table 2). Using

TABLE 2. FARM EARNINGS BY SIZE OF FARMS ON 64 EAST CENTRAL ILLINOIS FARMS, 1926–1935

No. of farms	Aver. size of farm acres	Aver. crop yield index 1926–1928	Aver. crop yield index 1933–1935	Aver. per cent of cropland in soil-depleting crops 1933–1935	Aver. returns per acre from productive livestock 1926–1935	Aver. net income per acre 1926–1935
9	117.2	110.0	116.1	70.2	$17.89	$8.22
21	178.0	106.0	112.8	73.7	14.19	8.03
18	243.6	103.6	96.9	78.8	9.21	7.05
16	346.1	100.2	93.0	80.5	8.62	7.36

the average annual crop yield indices as a basis of 100, it is significant that during the first three years of the period, the small farms

averaged 9.8 per cent larger yields than those in the largest size group. Having noted the tendency in recent years toward larger farm operating units and reduced productivity, especially of unoccupied rented land, it is significant that the last three years of the period show even greater differences in yields. Additional data might not show such marked differences in yields due to a wet spring in 1935 which may have unduly handicapped the extensive farmer, but the differences in yields are consistent with the average per cent of the crop land in soil-depleting crops during the last three years of the period. One would expect the difference in cropping systems to have a direct effect on livestock production. It is significant that over the ten-year period, the small farms had twice the livestock income per acre and the net income per acre was more than 11 per cent greater than on the larger farms.

This raises the question, how significant a place does livestock production hold in good farming? When the same farms are regrouped on the basis of the number of animal units per 100 acres, the most intensive livestock farms have approximately 10 per cent more land in soil-conserving crops and nearly five times the livestock income per acre as the lightest stocked farms (Table 3). Most significant of all, however, the net income per acre was more than 30 per cent larger on the more intensive livestock-producing farms.

TABLE 3. RELATIONSHIP OF LIVESTOCK RETURNS TO FARM EARNINGS ON 64 EAST CENTRAL ILLINOIS FARMS, 1926–1935

No. of farms	Aver. animal units per 100 acres 1926–1935	Aver. returns per acre from productive livestock 1926–1935	Aver. per cent of cropland in soil-depleting crops 1933–1935	Aver. net income per acre 1926–1935
9	31.6	$21.04	75.3	$9.08
12	21.8	15.72	73.6	8.35
19	17.3	11.95	73.1	7.21
18	12.3	7.35	80.4	7.28
6	8.5	4.24	82.7	6.23

The old argument that tractor farming gives a farmer more time to care for livestock is doubtless true, but the modern farmer is finding the answer in using his fully mechanized equipment on more acres and in doing custom work to reduce the overhead. As for livestock production, the thinking of many farmers apparently follows that of the man who said that as he had increased his acreage, he had actually reduced the total amount of livestock. This was done, he said, partly because after riding a tractor all day, he was not in a mental condition to properly care for any kind of livestock.

A farmer's debt status is another important factor affecting the

use and management of farm land. A farmer will put a larger proportion of his farm in cash crops if the holder of his mortgage is pressing him for interest and principal payments long overdue. Information on land use and indebtedness obtained on a large number of farms in central Illinois indicates clearly that the land is used more intensively on those farms that are in financial difficulties.[1] For example, on farms on good soil with loans in good standing, 84.8 per cent of the total area was in crops in 1935 and 86.4 per cent of the crop land was in soil-depleting crops, while on farms with loans delinquent or foreclosed, 91.8 per cent of the area was in crops and 92.5 per cent of the crop land was in soil-depleting crops. On farms on which loans were in poor standing, a larger percentage of the crop land was in corn and a smaller percentage in hay and pasture than on the farms on which the loans were in good standing. Relatively the same relationships held true on groups of farms on intermediate and on inferior soils.

In connection with the more recent programs, and especially those that are receiving direct public attention, our soil erosion program, in some quarters, started off as an engineering project with an engineer laying out terraces which were built absolutely

TABLE 4. COMPARISON OF LAND USE ON 338 FARMS WITH DIFFERENT LOAN STATUS AND ON DIFFERENT TYPES OF SOIL, COLES AND ADJOINING COUNTIES, ILLINOIS, IN 1935

	Good soils		Intermediate soils		Inferior soils	
	Loans in good standing	Loans delinquent or foreclosed	Loans in good standing	Loans delinquent or foreclosed	Loans in good standing	Loans delinquent or foreclosed
Percentage of land in crops	84.8	91.8	65.5	66.7	71.9	75.9
Percentage of crops "soil-depleting"	86.4	92.5	67.3	73.6	60.8	67.5
Percentage of crops:						
corn	38.7	40.8	33.1	35.0	24.2	30.2
hay and pasture	13.1	7.5	29.7	18.8	30.7	21.3
idle	.5	0	3.0	7.6	8.5	11.2
Average size, acres	112	116	100	116	99	118
Number of farms	84	11	112	32	66	33

on the level and with the erection of dams guaranteed to withstand all floods. This was done without enough consideration of the crops growing on the eroding soil or the farm practices which contributed to or prevented erosion. Frequently the practical benefit of the work as a demonstration lost some of its value because the cost of improvement relative to the value of the land was not given proper consideration. Fortunately, the work was undertaken on a sufficiently extensive scale with enough practical men engaged in it to insure careful observation and a rapid learning from experience. The farmer, however, is still struggling with the fact that when the proportion of the land in grass and legumes is greatly increased,

[1] Doctoral dissertation, "Factors Influencing Farm Lending Experience in Coles and the Six Adjoining Counties, Illinois, 1917–1933," by Joseph Ackerman, University of Illinois, 1937.

his problem is far from solved; when he finds a large part of his crops are roughages, the problem becomes acute, if he happens to be untrained in livestock production.

These remarks are made merely to point out that the problem on land needing mechanical and cropping methods of erosion control involves farm management problems which begin with the cropping system and end with the disposal of the crop in the form of livestock. It requires careful farm planning if the task of the farmer is not to be beset with too many difficulties. We may well observe that if the plan as worked out for an individual farm succeeds, the farmer is willing to accept it as his own, but if it fails to meet the need someone else will get the credit for the plan. Perhaps some emphasis is justified at this point on the whole question of soil erosion control because it is in those sections of the state needing erosion control that our most serious farm management problems arise. They became serious in the first place because many of these farms had a shortage of tillable land to balance pasture land against crop production, and the farmer cultivated land which should never have been plowed, in an effort to balance his farming plan as he conceived it. Now we have a more serious problem of keeping more of the rolling land in grass than would have been necessary had a conservative plan been followed through the years.

As another aspect of the recent agricultural programs, many of us have participated in mass calculation designed to learn how farms should be organized. This effort has been well worth while, but without considerable refinement, it does not fit the needs of a particular farm. This is well illustrated by a careful analysis of corn-belt agriculture.

In corn-belt areas where marked differences occur in soils, but with a large percentage of the land tillable, there is a definite tendency to use the land of different grades in about the same proportion for various crops. This means that about the same use is being made of poor land as of good land, regardless of the ability of the soil to withstand such a cropping system.[2] The situation may be illustrated in this way. Assume that land is graded according to its productivity from 1 to 10, with the best soils as grade 1. On farms which may include soils of grades 2, 3, and 4, it will be found that the farmer uses the lowest grade, or 4 soil, for pasture purposes, while the higher grades are used primarily for crop production. In passing on to inferior, all tillable soils which grade 4, 5 and 6, the tendency is for the farmer to crop grades 4 and 5 and

[2] Doctoral dissertation entitled, "Land Use Problems in Selected Areas of Central Illinois," by J. E. Wills, University of Illinois, 1937.

to place his grade 6 land in pasture. In regions where these differences in soils occur and in which most of the land is tillable, the tendency is for farmers to grow approximately the same crops in the same proportion, although the lower grades are less capable of withstanding heavy cropping.

Carrying the same type of analysis into areas still more rolling in character, where streams have cut small valleys and a larger per cent of land is untillable, one finds more serious problems. Along the streams there may be bottom land which represents the washed-off soil of the higher lying lands, most of which soil is quite productive. Immediately beside it, however, one finds a low bluff with its exposed parts badly eroded. Much of it formerly cultivated has now passed out of cultivation and it is impossible to redeem it on an economic basis. Farther back one finds rolling land still under cultivation but rapidly deteriorating; moving on back, one finally comes to some of the best prairie land. Farms were laid out in squares with the mathematical exactness of our survey system. Originally, many of the exposed, rough areas were timber tracts owned by farmers living on the prairie. After the timber had been cut off for farm use, some one undertook to make these odd tracts into farms. The longer they were cultivated, the worse they eroded and the harder the operator tried to make a living from them, which meant a large proportion of cultivated land. Fortunate, indeed, was the farmer who, having some rough land, also had level land, so that the rough land was left in pasture, while he cultivated the level area. The rectangular survey system appears to have been one of the chief factors in determining the manner in which most of the country was originally divided into farming units with little regard to type of soil, or combination of types on individual farms. Naturally, readjustments are continually taking place as economic necessity and absolute failure make these changes possible. Many of these areas are being redeemed, but at a high cost. A striking statement, which I believe to be true, was recently made by a farmer in one of the best central Illinois counties. He said, "In our county, there are at least 200 farms which will rapidly become worthless for cultivation, in spite of anything the owner-operator or the tenant and landlord can do, because of their financial condition."

In the less productive areas, adjacent to the corn belt proper, the situation is worse. In one area in a southern Illinois county, 19 per cent of the tenant farmers received in 1935, relief amounting to $416 a farm or $4.58 an acre. Farming unproductive land is evidently forcing these tenants almost off of the economic ladder on

land which undoubtedly has its best use in something besides tilled crops, although for nearly a century it has given reasonably good support to the farm family.

Our conclusion must be that soils greatly in need of conservation need radical changes in methods of farming and in farm layout. Successful changes in agriculture will undoubtedly result gradually from education and evolution in farm practice, rather than through radical changes unless stringent means are employed to bring about changes in agricultural methods. Information seems adequate to establish the need of radical changes in both farm organization and farm practice, if acceptable conservation is to be accomplished. Just how insurmountable is this situation? Has a golden opportunity already been lost in that the educational program has not kept pace with the action program? The early efforts of the Agricultural Adjustment Administration were undoubtedly intended as a stop-gap until a more permanent agricultural program could be established. Too recently and too frequently office girls have been called on to tell a farmer what he could do to conform to the regulations entitling him to a performance payment while only rarely have local officials given emphasis to soil conservation on more than a year-to-year basis. On the other hand, many members of the state and of the county committees are doing an excellent job of turning the emphasis from merely qualifying for payment under the Conservation Act to soil conservation. While the educational emphasis is being exerted in some quarters, it will be a long time before the desired results are accomplished with all farmers. Even though some form of regimentation is applied, it will be even more essential that the educational work be continued or the more forceful approach may be overthrown. It may be observed that for a considerable period of time the best known soil conservation practice, including better rotations, will accomplish a large measure of production control. Production control, however, can be accomplished under a plan leading even more rapidly to soil depletion. Agricultural statesmanship can have no choice as to which of the two is of the greater significance as a long-time economic objective.

In any agricultural educational work there is a lag between the determination of a desirable program and its execution on the individual farm. It is unnecessary to state that the majority of farmers who cooperated with the recent agricultural program did so for the compensation involved, rather than because of a full appreciation of the deeper significance of the conservation program. It is, however, gratifying to note some evidence that the

national program seems to be showing a trend toward more emphasis upon good farm management.

An understanding of the farm management aspects of soil conservation requires a proper psychological approach to the problem, if desired results are to be accomplished with the individual farmer. The calendar of farming operations is a kaleidoscopic affair. The farmer through apprenticeship in farming, imitation of others and years of experience, takes in stride the germination, cleaning and treating seed for planting, seed bed preparation, mending the pasture fence, rearing young animals, and a thousand other jobs, some fixed as to time of performance and others finding their place in a busy year's schedule. Each of these jobs is somewhat of a distinct operation to the farmer.

The specialist in the field of soil conservation takes for granted or more frequently, overlooks the farmer's problems of coordination of effort. In fact, some specialists have spent so much time in specialization that they are not well rounded agriculturists. Perhaps at this point, farm management has the most to contribute. Farm practices that pay—the small separate jobs the farmer does throughout the year—can be coordinated into a unified plan of organization for the entire farm. The laying down of a soil-conserving cropping plan for a farm that omits a careful analysis of each step of the action program necessary to the accomplishment of a good cropping system is deficient. A plan which stops before considering how crops are to be utilized, or which does not assist the farmer to get a picture of the completed system of farming with convincing proof of its economic soundness, will at best leave the farmer a disjointed program. Too frequently the coordination of the entire plan has not been uppermost in the minds of specialists. Some have recognized the problem but have taken the attitude of letting the farmer grow into it. He will have to grow into it, but he will do less faltering and meet less discouragement if carefully directed in making a detailed plan for the operation of his farm. Farming is a complicated business. To make a complete farm plan, in all its details, is a complicated procedure. A complete, formal farm plan with all its details, may confuse the average farm operator, instead of giving him a clear outline to follow in operating his farm. In order to prevent this, it is well to establish, in so far as possible, some fundamental principles regarding farm planning:

(1) Before any plan is attempted, a careful analysis of the farm should be made to ascertain the technical, economic and social problems involved.

(2) The person in authority to put the plan in operation must accept any farm plan as his own, regardless of the source of basic information, and whether or not he actually does the work of writing out the plan.

(3) A farm plan may consist of more than one part which must fit together in "a basic plan" for the farm.

(4) "A basic plan" is essential, regardless of whether or not all parts are worked out in detail.

The average farm operator assumes that he knows the technical, social and economic conditions that affect his farm, and too frequently those having to do with the technical procedure of farm planning make the same assumption. They start by drawing up plans before making a careful analysis of conditions, or properly diagnosing the situation in regard to the farm. After a careful plan has been drawn up, however, it may be found that the cost may be greater than current resources will stand, because the more desperate the circumstances, the harder the operator has used the soil in an effort to make the income add up to commitments and living needs. When this occurs, the problem ceases to be altogether a private one.

If "the American farmer has fed half the world at half price for half a century" and by so doing gave his own country abundant raw material to help establish a great nation but has depleted his natural resources, we have the best possible case for public assistance in maintaining agricultural resources for posterity. Immediate problems, at least on certain farms in most of our agricultural areas are (1) a careful appraisal of land which is becoming progressively less productive; (2) the area of this land needed for posterity; (3) the handicaps the submarginal land of a community imposes on the agriculture and life of that community; and (4) the cost of conservation and the immediate and long-time net results which may reasonably be expected from this land. This calls for farm planning of the highest order; planning which will lead the farmer's thinking from his practice of today, step by step and year by year, to the logical economic organization of his farm as a long-time business enterprise. Having established an objective which the farmer can well afford to follow as a private enterprise, a guiding hand is still needed to fully develop a demonstration for the community before the mass of farmers will follow as they have many other farm practices. Each year the task of setting soil conservation on an effective basis becomes more difficult on the majority of farms.

With the public funds directed to agriculture, it is difficult for one who is economically minded to feel that full advantage has been taken for encouraging soil conservation. It is to be hoped that the agricultural statesmanship of this nation for all time to come will be sufficiently conscious of soil conservation and its

practical farm management aspects not to confuse it with other issues which of themselves may be vital to agriculture, but whose nature makes it inadvisable to confuse them with soil conservation.

Discussion by C. W. Crickman

Bureau of Agricultural Economics

Almost, if not from the beginning of studies under the title of farm management, the conservation of the soil has been one of the factors given most attention in considering the farmer's problem of establishing and maintaining net returns on a high level. As early as 1906 Dr. Spillman wrote a Farmer's Bulletin on the Renovation of Worn-Out Soils. A few years later, in 1910, he wrote another entitled Soil Conservation. In these publications, and possibly others, he discussed farm practices and types of farming that aid in maintaining and building up the soil. In 1910 Spillman concluded, as Professor Case does today, "that the main work to be done for soil conservation in this country is that of teaching the farmer how to utilize the resources at his command . . . The methods necessary . . . are, first, to determine what types of farming are best adapted to conditions prevailing in the different sections of the country, and second, to help the farming population to readjust itself to these conditions. Where the [soil] has been impaired the systems must be adjusted to obtain the restoration of the highest possible productivity under economic limitations, while keeping in view the best uses of the soil when the fertility has again reached its maximum. This readjustment is an expensive process to the farmer—new equipment must be earned and more labor must become available. Not only must the farmer be taught the principles of soil management, but he must be taught how to take better care of his animals and how to breed a better class of animals . . . The change from an exploitive to a conservative type of farming is at best a gradual one, and requires unusual resourcefulness on the part of the farming population. Many of our . . . farmers have successfully met these great problems, and their experience now becomes a source of valuable information to others."

Thus we may say in a brief statement that the farm management aspect of soil conservation is the determination for conditions prevailing in different sections of the country of types and systems of farming and soil management practices that will maintain or restore the highest possible productivity that individual or social values and costs will warrant, keeping in mind the future use and returns from the soil. Any enlargement of this statement indicates that the solution of the problem encompasses many lines of effort, some of which are economic and others which are agronomic, engineering, etc. The farmer, however, must integrate application of the social and the natural sciences in a way that will give the fullest meaning to conservation.

The solution of the problem is beset with many difficulties, for, as Professor Case points out, conditions are so varied. The problems of soil conservation are widely different in the cotton belt and the corn belt even though they may have many common elements. The same is true of the dairy regions, the grazing regions and the reclamation areas, not to mention the general and the self-sufficing farming areas. They are

different on different types of soil within a farming region. And they may be as widely different on adjoining farms as in different soil type areas because of varying combinations of natural conditions on individual farms or because of varying degrees of previous exploitation of the soil. Moreover the farmer's resources other than his soil, and his motives, are also variable factors contributing to the heterogeneity of the problem.

I would emphasize with Professor Case that, because of its variability, the problem of soil conservation is largely a problem which must be related to each individual farm. Likewise studies of the farm management aspect of soil conservation may have to be largely case studies, at least until we know a great deal more than we do now about place variations in individual farmer's situations. Farm management studies of soil conservation projects or other representative areas have in too many instances failed to summarize adequately the conservation problems on the individual farms and to relate other data to these problems. Little has been done toward classifying conservation problems of individual farms and grouping farms according to such classifications.

Again, I would also emphasize with Professor Case the need for enlarging our body of information on (1) the long-time effect of conservation practices on physical inputs and outputs as they relate to soil conservation practices and (2) the extent and rate at which soil conserving feed crops can be substituted for the feed grains, which are on the whole soil depleting crops. Progressive farmers will be an important source for much of this information. In many instances, however, it will be necessary to supplement farmer's observations with closer measurements than he is able to make. These careful measurements should be taken both on experimental plots and on cooperative farms.

In emphasizing the difficulties of determining what is economic conservation and the need for more adequate information, I would not want to leave the impression that we do not have a working knowledge of general practices that will conserve and build up the soil, and of the facts essential to the determination of costs and values involved. I believe that farm management specialists can contribute data and experience which will be of real assistance in integrating the application of the social and natural sciences to the problem of conservation on many farms. I would suggest, however, that the cause of soil conservation will progress most rapidly if we attempt in action programs only those measures which are clearly desirable, and do well what we do, than if we attempt measures on which we have inadequate information or which are of doubtful merit.

There are many farms in this country on which the farmer cannot practice real conservation and make a living at the same time without an exorbitant benefit payment from public funds. Unless such land can be distributed among farmers in units which will permit economical conservation, the accomplishment of soil conservation undoubtedly will encounter higher costs than the increases in values either private or social would warrant.

Discussion by W. J. Roth

Soil Conservation Service

Dr. Wantrup's treatment of "Soil Conservation in European Farm Management" leaves us with two very distinct impressions. The first is that the part of Europe to which he has limited his paper has a climate

favorable to soil conservation, that is, it has soft rains during the whole year. The second impression is that Europe has a people, who, by reason of a background of experience and training, have a very favorable mental attitude toward the land which they cultivate. This favorable mental attitude has grown out of a land scarcity. Whether this land scarcity be relative or absolute, whether it be institutional, technical or economic in character, this land scarcity has bred an appreciation of land as a value to be conserved which has worked effectively in this regard.

The question which we as embryonic soil conservers selfishly would ask is: How will this help us in America in our program of soil and water conservation? How can we in our efforts to conserve the soil benefit by a knowledge of what is happening in Europe? How can we in the U. S. A. benefit by a knowledge of what has transpired in Europe over the centuries? Has European farm management, both practical and academic, developed a philosophy, a method of teaching or a set of practices which can guide us in our way of thinking and doing?

Dr. Wantrup very pointedly has suggested that a land-using people may "find in the economic development of an area; first, a stage in which extensive crops are grown with little need of soil conservation, then a stage in which intensive crops are grown with the need for, but without the economic possibility of soil conservation, until finally a stage is reached in which the inputs for soil conservation become economically possible."

Dr. Wantrup undoubtedly could find these three stages in the economic history of our land use. I am convinced that we have gone through at least the first two of these stages and are entering the third. I certainly hope that we have gone far enough to be ready for the third stage even if we have not actually gone into it.

But to return to our question: What can we do about it? We have a climate which includes a tendency to torrential rains of the heavy downpour type. These rains are termed "high intensity" by our soil conservation technicians, rains with a rate of precipitation that rises to four or even five inches of precipitation per hour for short periods of ten or fifteen minutes. These rains are of the "gully washer" instead of the "potato soaker" type, as the old darkey explained. Rains such as these with their accompanying erosion give us a problem which an experience developed under Europe's soft summer rains cannot solve. This leaves us out in the rain so to speak. We still have our problem. At least we know that much.

The second point is one which contains greater hope for us. A land-using people with a mental attitude toward land in which exploitive, extractive ideas prevail or a people using land during a period of time in their development in which the extractive economy is dominant whether necessary or not cannot be expected to use that land in a manner consistent with conservation ideals either physical or economic. If European people have passed through the stages of land exploitation to land conservation, we can do likewise. Though we may not have the advantages (or disadvantages) of the institutional scarcity induced by Europe's historical background, we can quite logically look forward to a real scarcity of land in time. The absolute limits to our acreage have been reached with the gaining of the shores of the Pacific by the westward moving stream of settlers. As a stream of water striking an obstruction is

thrown back upon itself, so our stream of land-hungry people has been thrown back upon itself. The westward moving frontier pushed to the Pacific is now no longer a frontier of space. Our frontier is now more nearly a frontier of more effective, perhaps more intensive, use of our land area. The more intensive use of our land will of necessity be tempered by a more "conservation minded" use with intensive-extensive combinations suited to the local conditions of soil and slope under local limitations of climate and local opportunities of market outlets.

The question of how to bring about the proper mental attitude on the part of our people both urban and rural is one to which we should give considerable attention. Granting that we can (and we believe we can) establish the economic feasibility of our soil conservation programs on American farms, we should not wait, in fact we cannot wait, until time brings its forceful lessons and induces or even coerces, land users to conserve the soil both body and fertility, but we should be well in the vanguard proclaiming the opportunity on the one hand as a lure to a more soil conserving use and the dire consequences on the other as a deterrent to soil destructive uses. The opportunities in a soil conservation program appeal to us as lying not only in the losses to be avoided and the benefits to be gained by the cultivators of the soil but in a large measure in the losses to be avoided and the benefits to be gained by other private and by public interests, both agricultural and urban. Roads are damaged by erosion through washouts and through deposition of erosion debris. The correction of these damages entails a cost to our roadway authorities of thousands of dollars annually. Streams as well as drainage and irrigation channels are filled with eroded material and rendered unfit for the purposes of navigation, drainage, irrigation or water supply to say nothing of wild life and recreation. Reservoirs are filled with silt rendering the investments made in the building of their dams valueless, for whether municipal water supply, power storage, irrigation, flood control or whatnot, these structures lose their value when their water storage capacities are reduced. Fertile valley lands down stream are often covered with material of lesser value, agriculturally, brought from eroded lands higher up. The destruction of the uplands is accomplished by the destruction of the lowlands also in many cases. Flood control, though possibly not guaranteed in its entirety by soil conservation will be materially advanced by an adequate program of soil and water conservation on farms. The reduction of damages through flood waters, by lowering of crests and by a decrease in their periodicity can be included as real benefits.

If we are successful in bringing to our people some consciousness of the real cost of a soil depleting system of farming in contrast to the benefits of a soil conserving system of farming, we shall have relatively easy sailing in securing the adoption of soil conservation measures on farms. I say this because it may, and probably will, not be necessary to depend entirely upon the question of how far it will pay the farmer to go in adopting a soil conservation program. Instead we can opportunely ask how far can the public go in contributing to soil and water conservation on the uplands in order to secure the benefits which will accrue to the public.

I shall not discuss at length Dr. Wantrup's numerous citations of one sort or another, historical, technical or economic. Agriculture may have had its beginning in the neolithic age, that is between seven thousand and

two thousand B.C. That is certainly a safe range for conjecture, much can happen in five thousand years. That its technique did not change much through the Bronze and Iron ages should not lead us to forget that our technique is apt to change very rapidly nowadays, in fact it has been changing and will undoubtedly continue to change.

Much more can we question Dr. Wantrup's stipulation that "the central theme of farm management is the optimum intensity in land utilization," whether this means land conservation or land destruction. This is not the stipulation of his former Professor, Brinkman, who on page 7 in the translation of his work by Stippler is quoted as saying, "The aim of an agricultural enterprise is to achieve an individual profit which is as high and as *lasting* as possible" which he elsewhere states as "highest continuing profit." To this I attach the meaning that maintenance of the plant is a necessity. Our committee on definitions is insistent on bringing into the definition of farm management the same idea of continuous operation, of continuous return which certainly specifies the continuous availability of the agricultural plant for production and returns. We in soil conservation envision a more nearly permanent agriculture. With insufficient land surface to permit agriculture to occupy only the level-lying, less erodible soils, agriculture must push up the slopes. The organization and the operation of farms on sloping lands cannot be the same as on level-lying lands for several reasons. Farm management as a discipline which neglects this concept and neglects the maintenance of the plant must be revamped if it would live with the new idea and the new ideals. If, contrary to my impressions, farm management of today is constituted so that it disregards the maintenance of the productive entity upon which the farm returns depend, I for one shall set myself the task of preaching a new doctrine. However, I think we have no disagreement in this country on that score even though our theory and our practice may have diverged in this connection in the past.

PROSPECTS FOR INDUSTRIAL USES FOR FARM PRODUCTS

H. E. Barnard
Farm Chemurgic Council

With a population which has nearly reached its maximum, our farmers cannot increase production and at the same time sell their crops on an overloaded market at a price which will return them a living wage. In the solution of this most serious problem lies the possibility of a desirable social existence for the millions who live on the farm and the larger population which exists by reason of the farmers' efforts.

For many years chemistry has been working for the farmer. It has shown him how to increase his crops through the use of chemically combined fertilizers; how to produce more milk by feeding balanced and nutritionally complete rations; how to produce more meat and how to profit by its progress through the stockyard. While our chemists and experiment stations have been showing the farmer how to produce more and more they have given less attention to the importance of developing uses for his crops outside the satisfaction of the appetites of men and animals.

And these appetites require less food for their satisfaction today than ever before. In the early years of the century it took five bushels of wheat to furnish our bread, today three bushels. We eat less meat and carbohydrates and more fruit and vegetables. We produce more milk with less feed, more eggs and pork with less corn, finer children with less quantity but better selected food than before. By using the power produced by gasoline instead of by corn and hay burning horses, we have deprived the farmer of a market for the crops from many million acres.

Let us look at the farmers' crop from an industrial and chemical angle. What does he produce? Primarily, his crops are two major products, carbohydrates in the form of starch and sugar, and cellulose in the form of wood and cotton. Fat and protein are of secondary importance in the economic picture. We find some of our protein food in wheat and legumes, but the most of our proteins come second-hand in the form of meats and dairy products manufactured in the chemical plants operated by animals. We get some fats in the form of vegetable oils from seed crops, chiefly by-products, as cotton seed, linseed, corn and soybeans, but here again we have been taught to pass up these cheaper forms of fat and go to the cow for butterfat converted by her chemical and

biological digestive processes from starch and cellulose, and to corn-fed hogs for lard.

In other years we have found foreign markets for our carbohydrate and cellulose crops. Europe has needed our wheat and the world has spun and wove the cotton from our Southern farms.

Until the World War reformed the economic needs of Europe we found an outlet for our surplus grains and meats in the markets of England, France and Germany. We sent wheat from the Dakotas to French bakeries; we made lard on Iowa farms to grease the skillets in German kitchens. Today France grows her own wheat, Germany raises her own hogs, every country everywhere is striving towards self-containment as to her food supply. The Pontine marshes which Mussolini has reclaimed are now growing wheat. They will never again lie barren while Italian mouths are hungry.

The raising or lowering of tariff walls, the setting up of reciprocal trade relations, the artificial adjustment of quotas, will unfortunately be ineffective in securing for our farmers the reopening of world food markets which have been closed by successful nationalistic efforts to meet food needs with the products of their own acres. But even so foreign trade is not enough. Our great markets are at home, markets yet undeveloped, yet unrecognized.

Every thoughtful farmer, every sound economist, every American citizen who wishes American labor on the farm and at the factory to be steadily employed must face these facts and seriously consider the development of alternative situations which will remove the necessity for a world market for surplus food stuffs and provide at home new outlets in industry for our carbohydrates, cellulose and fats which after all are the only important raw materials produced on the farm.

Less than three years ago the necessity for doing something with farm crops besides eating the foods and spinning the textiles compelled the organization of a new movement which has been aptly named Chemurgy, a movement which grew out of the First Conference at Dearborn, Michigan, of farmers, industrialists and scientists and which is bringing to the same job the scientist and his laboratory, the farmer in his field and the industrialist in his factory.

The Chemurgic movement has been misunderstood by some who if they thoughtfully considered its significance would find in it much of help in the development of their own plans for improving the status of agriculture. The movement must not be penalized by the misinterpretation or the misuse of those plans or

objectives. It offers no panaceas through its program for the industrial use of farm crops. It promises nothing which can be earned except by the investment of long hours of research, hard work and disappointing failures, but perhaps at the end some real gain both for the farmer and the industrialist.

It would, however, be unfortunate if the Council were to take the position that dreams may not come true or that sincere belief in the possibilities of finding new uses and developing new arts is not essential to progress.

We must subject every promise in the field of Chemurgy not only to the scientist but to the economist and in many cases indeed to the sociologist. For it is not enough to find out how to make something out of wheat beside flour; it is necessary to know the effect the diversion of wheat to the new product might have in the broad field of economics. And it is equally necessary to know what the diversion of the crop to new uses might mean in the way of new social trends.

A concrete illustration which you have all considered is the possibility that the development of a cotton picker will not only change the economics of southern agriculture by decreasing the cost of producing the crop, but have as well terrific implications on the entire life structure of the South.

Chemurgic farming then must travel a narrow road, avoiding excursions on the one hand which are economically unsound and on the other the creation of beliefs that the promise of large industrial markets for surplus crops will soon be realized.

Many Chemurgic enterprises have been carefully worked out in research laboratories, and perfected in pilot plant operations only to fail in commercial practice. Plants for making alcohol from wood wastes, sawdust and cull lumber, a perfectly feasible chemical procedure, have been built in the South and in the Northwest. I know of two such plants which operated for a short time and then were closed with losses in the millions to the investors. In both cases the failure was due to the fact that the sources of raw material, mountainous as the sawdust piles looked to those who promoted the plants, were soon exhausted. The great cornstalk paper plant built a few years ago at Danville, Illinois, in which several millions of dollars were invested was built after chemists, engineers and paper experts had approved the plans and checked every process except the last and most important one, that of converting cornstalks into cellulose for paper and rayon at a profit. And so after everything had been made ready to divert paper making

practice from the forests of Canada and Sweden to the corn belt, the whole magnificent venture was unsuccessful.

But this need not be taken as a proof that it may not some day be entirely practical to use waste corn stalks and many other waste fibrous crops for paper making. Some day the difficulties will be overcome as has been the case with a somewhat similar enterprise in the field of flax.

Twenty-five years ago a mill was built in Duluth to turn the large tonnage of flax straw of the Dakotas into rugs and carpeting. The plant today is making splendid products and is doing so at a profit. But more than a million dollars was lost before means for wiping out the red ink were found.

But these reports of chemurgic difficulties are offset by the astonishing progress of more successful applications of chemical engineering as the latest figures so clearly show.

The chemical processing industries are based upon the conversion of raw materials into a great variety of valuable products. For their raw materials they go to the mine for ores and for fuel, they go to the farm and forest for annual crops and the annual growth of wood. Last year the chemical industry paid the farmers $850,000,000 for raw materials from his annual harvest and $300,000,000 for his wood and timber which is a farm crop just as definitely as is his corn.

The statement that this is a chemical world is literally true. Today the American Chemical Society is the largest scientific organization in the world. Twenty-five years ago it was a small group composed for the most part of teachers. And then the chemical engineer appeared and in twenty-five years the industry has progressed so rapidly that in 1936 our production of chemicals was far greater in volume and value than the total output of the nearly three hundred years up to the years of the World War which had passed since John Winthrop, the son of Governor Winthrop of the Massachusetts Bay Colony, made in his Boston shop the first chemicals produced in this country, saltpetre for gunpowder and alum for tanning beaver skins. Today our chemical industry makes over four thousand different chemicals, essentials in our modern life, and measured either by dollars or tons our output exceeds the chemical production of England, France, Germany, Italy, Russia and Japan all added together.

And most of this amazing progress has been made since the Great War. If anything of value came to us as a result of our participation in a war to make the world safe for Democracy it has been our chemical industry which in no small measure has resulted from the

activities of the Chemical Foundation which was incorporated at the close of the War to take over title to the more than 1,600 German patents, largely chemical in character, which are up to the present almost the only tangible return we have received from warring Europe, and the directing head of which through all these productive years has been the late Francis P. Garvan.

In the year now closing chemical manufacturers have spent $20,000,000 for research, 22,000 technically trained men and women in 1,600 industrial research laboratories have been working on new and improved processes, on the development of new products, on the reduction of costs, on the application of rare and unusual products to commercial supplies for practical usefulness. Their work goes even beyond these ends for it is improving the purity of products, increasing the stability and usefulness of dyes, developing new medicines and always advancing the efficiency of by-product recovery. Research creates chemical engineering developments and chemical industry makes possible the advances of science.

The chemical process industries are accounting for an enormous portion of the modernization and expansion program. In the last two years alone they have invested the almost unbelievable sum of $350,000,000 in modern equipment and in new plants to enlarge production facilities.

The procession has been led by the pulp and paper industry which has been far out in front with its $138,000,000 in new mills and with a promise of many more for the immediate future. The rayon and transparent wrapping film, petroleum refining, heavy chemicals, coke and manufactured gas, distillery and other industries follow the leader with important programs.

The pulp and paper industry has within a few years come from a position at the bottom to prominence as a leader in industrial development. Today it is second only to steel in rate of expansion with splendid prospects for continued growth. The sudden burst of activity is due to a combination of several compelling forces. The greatest single factor has been the shift from the eastern to the southern states, which constitutes a phase of industrial expansion comparable only to the immediate post-war migration of textile manufacturers from New England.

A significant illustration of chemical alertness and progress is shown not only in the rapid increase in the volume of production but in the accompanying reduction in price to the consumer.

The recently published "Dye Census" of the Tariff Commission is literally packed with illustrations of this type of chemical prog-

ress. One of the most apt is the 1936 production of 31,244,378 pounds of phthalic anhydride sold at 12¢ a pound. Exactly twenty years ago, the first U. S. output was 138,000 pounds sold at $4.23 a pound. That is true chemical progress, and while coal-tar products have been leaders in this line, still they do not monopolize it. A decade ago we produced from imported natural raw materials 3 million pounds of citric acid which was sold at $1.25 a pound. Thanks to a new chemical process we are producing this material from domestic materials at the rate of over 15 million pounds and selling it for 24¢.

At Kingsport, Tennessee, a wood-distillation plant recovers pyroligneous acid as one of the primary products. This crude acetic acid yields sodium acetate. From it acetic anhydride is made, only to be used in another unit of the same work for the manufacture of cellulose acetate. Some of this product is converted into rayon. From this operation there is a recovery of some weak acetic acid. This is then concentrated and shipped to an affiliated plant in another state where it is made into other acetic-acid derivatives. One of these is a transparent wrapping material which contains not only cellulose acetate but other acetates that serve as important conditioning agents. Thus acetic acid is the connecting link between industries quite as diverse as wood distillation, organic and inorganic chemical manufacture, and rayon, plastics, photography and transparent film-production.

The romantic story of how the colony of bacteria discovered on an ear of corn which helped win the World War made the modern lacquer industry possible and revolutionized automobile production methods is a good illustration of the way corn goes to market outside the barnyard factory. When bacteria feed on starchy materials they produce solvents, butanol, acetone, methanol and alcohol as products of their life cycle. These solvents are the keys which have unlocked the doors to new industries, to new materials and to new competition with old but far less satisfactory materials.

The broad market for these numerous solvents has been achieved not so much by displacing old industries to make way for new, or displacing men with machines, as it has by creating new industries, new processes, and new products—thus providing new opportunities for employment of man power. The building of the market for solvents represents that helpful type of new industry which wrests wealth from Nature and contributes it, not to the welfare of the few at the expense of the many, but to the welfare of all. For these solvents enter into the production of the food we eat, the clothes we wear, the automobiles we ride in, the buildings we live in, the

furniture that surrounds us, our household and office appliances, the books and publications we read, the films that entertain us, our cosmetic and our sport equipment, our drugs and our medicines, in all our means of transportation and communication.

With these specific instances of Chemurgic developments before us, who can challenge the need for more factories, more intelligent land use, more productive machinery and always more labor? There is still need for all the crops we can take from our land for food and an increasing need for Chemurgic crops for our factories. It is safe to say that for every bale of cotton, every ton of sugar, every bushel of corn that may be displaced in its old market by new products, two bales, two tons and two bushels will find a new use in industry. It is to find these new uses and to expand the markets for our farm crops that the Farm Chemurgic Council is working.

All this requires knowledge, will and action. The knowledge which will find these new uses is a product of research. It will come out of the laboratory where the chemist is breaking down the raw materials we call cotton, sweet potatoes and corn into cellulose and starch and these again into the tiny atoms that are the chemist's raw materials. He may buy them in the form of cotton or soybeans or milk, but he sells them in the form of rayon, automobile parts, organic acids, new glues and gums and dextrins, new building materials for our homes, new paints and varnishes, even new fuels for our automobiles. These new uses require as raw materials the molecular aggregates which we take off the land in annual crops. It is true that the chemist can synthesize them in his laboratory and some of them he will undoubtedly produce there, but this year and for many years to come the sunshine and the rain, the fertility of our soils and the patient labor of our farmers will grow the crops industry needs more cheaply than the chemist can make them.

The most important of our annual crops are the carbohydrates built in the chemical laboratories of living cells under the magic influence of light and heat from the sun, from the oxygen, carbon and hydrogen of air and water into sugar, starch and cellulose.

Our chief cellulose crop, grown and harvested every year from millions of acres, is cotton. Cotton is our chief cash crop, our chief export crop and it probably supports, directly and indirectly more people than any other crop. But cotton is a sick crop; the states which grow it are sick states; the people who raise it are largely poor tenant farmers and if the cotton pickers now being developed into practical realities ever displace human labor from the harvest

fields the economic and social situations will be far worse than they are today.

Why is this, and is there any way by which to bring relief to this great industry? Chemurgists believe there is a way and that is the use of cotton for other purposes than for spinning yarns and weaving cloth. Already great progress has been made in finding new uses. And the progress has had its origin in the research laboratories.

In the last year of the last century Arthur D. Little, one of the first of the research chemists who worked in the industrial field, went to Europe and found there a new chemical product which seemed to him to be valuable. He secured an option on the American patent rights and came back to Boston to raise the $55,000 with which to buy them. He talked with bankers, with manufacturers and finally in desperation with his friends but he could convince none of them that it was possible to make artificial silk in a chemical plant.

Last year the world production of rayon and similar types of fabrics based on the price of American output was valued at $535,000,000 and of this huge new wealth the United States produced goods to the value of $148,000,000. But the volume of production is better shown by the tonnage than by its value, for in the last ten years the price has dropped from $2.90 to $0.65 per pound while production has grown in twenty-five years from 320,000 pounds to 277,000,000 pounds in 1936. And rayon is just as truly a cotton fabric as is calico. In 1935, the last year for which we have the figures, the industry used 64,000 tons of cotton linters, or the linters cut from the cottonseed grown on 6,600,000 acres.

This is but one of the many Chemurgic uses for cotton. It took the linters from 300,000 acres to make the smokeless powder used last year by American sportsmen. A million more acres were farmed to grow the linters used by the plastic industry. And in making lacquers and varnishes 1,100,000 additional acres were used. It is important to note that all these millions of acres are today serving an industry which has grown from nothing in the past twenty-five years.

The product we know as rayon is formed by extruding or forcing a chemical solution through a fine orifice thus making a filament which is hardened in suitable solutions, one of which is glucose which last year required for its making the corn from 320,000 acres. If the solution is extruded through a slit instead of a round hole the product is something very different from rayon, it is cellophane. This Chemurgic product was not made in this country before 1925.

Today everything we buy from cigarettes to automobiles is wrapped in sanitary cellophane.

The transition from rayon and cellophane to the plastic industry is easy. Indeed both these products are entitled to classification as plastics. Plastics are not new products. We have used them for years in the form of celluloid combs and collars. And milk casein pressed into plastic buttons and billiard balls is no new development. But these uses, significant as they were, never made an industry. They were specialties. The real start of our plastic industry which is today the most lusty of our chemical children came at the close of the War when the Government found it had on its hands 40,000,000 pounds of carbolic acid for which it had no further use. It was not made for its value as a disinfectant, it was intended to be used to make picric acid, an explosive. This then worthless war material went to chemical manufacturers, to the men who were making jewelry and ornaments out of the new synthetic product called Bakelite. Because they bought it cheap they expanded their business rapidly, and with their success came imitators and then competitors and almost overnight a whole series of new plastics were being made.

Today the plastic industry uses a great variety of raw materials produced on the farm, casein and soybeans, cotton or wood pulp and acetic acid which form cellulose acetate and glycerine, a by-product of the soap or oils and fats industries, which is the basic material in the new Glyptol resins. It is these Glyptol resins which are the lustrous coatings of our automobiles and which are adding in so many ways to the durability and beauty of modern varnishes.

Of all the plastics the most rapidly growing is cellulose acetate which is formed into sheets, rods, tubes and molded products. It was first made in 1932 and in five years has developed a production of more than 12,000,000 pounds. It is the material from which millions of feet of photographic film is made. It is the film filler for the more than 750 acres of plate glass which went into our automobile windows last year.

The farmer may not know it but some of his crop is built into many parts of his new car and huge tonnages go to the foundry for the making of cores for castings, to the paint shop for conversion into lacquers, to the chemical plants to be made into leathers, solvents, fabrics, briquettes. The automobile and tractor which have taken the place of hay burning horses are far more than the ore from which the iron, copper and lead are smelted. To an extent almost unbelievable to the layman who has not followed the

progress of chemistry into industry almost every manufacturing plant has to go to the farmer for his materials.

A new crop which grows to perfection on the corn lands has come rapidly into large production. That is the soybean crop.

Soybeans came to the United States in a clipper ship, back from trading along the China coast one hundred and thirty years ago. For more than a century it remained an interesting bean-like plant chiefly important to us only as the strange food of the peoples of Eastern Asia.

But with the beginning of the present century, the agronomists of our State Experiment Stations started intensive studies of the soybean plant and soon found that it was a most valuable farm crop that could be grown in almost every state. If the interest in this new crop continues to grow as rapidly in the next two decades as it has in the past two, soybeans will rate well up with corn as our major farm crop.

Great progress has been made in developing industrial uses for the soybean during the past few years. It was not until 1929 that absorption by soybean crushing mills began to be a potent factor in influencing production of the crop. By 1934, such marked advances had been made that 20,907,000 pounds of soybean oil went into food products and industrial uses, and this figure was more than quadrupled in 1935 and 1936.

While the protein content of wheat is about 12 per cent, and of corn not more than 10 per cent, the average protein content of soybeans is 40 per cent. This figure is far higher than the protein content of any other important food and places soybeans in a class by themselves if we are considering their value for human or animal feeding. But these soybean proteins have other uses than as muscle building foods. They will play an important role in the plastic industry, a role depending almost entirely upon the ability of the soybean proteins to combine chemically with other plastic forming materials. It is probable that these proteins, extracted or separated from the meal in relatively pure form will find many uses in the chemical and semi-chemical industries.

Perhaps no outlet for soybeans which is almost wholly noncompetitive with established industries approaches the possibilities in using these vegetable proteins in the sizing or coating of paper. As a result of the work by the Institute of Paper Chemistry, a new sizing process has been developed. In all, over two thousand tons of paper were made experimentally at various paper mills during the last two years.

These commercial tests were unusually successful and demon-

strated the potential possibilities for the use of tremendous quantities of protein in the paper industry. As a result of these sizing operations certain types of pulp which heretofore have been very difficult to size were successfully treated. Marked improvements in the characteristics of the paper sheet were shown, the strength in all cases was raised and the folding strength of the paper as well as the formation of the sheet showed marked improvements.

If the paper industry should generally adopt this sizing process and the trade demand a superior paper, it is estimated that this use in the paper industry alone would require from 14,000 to 15,000 tons of protein a year. Even this would involve only about one-tenth of the entire paper industry. In addition to this sizing process there is a very active demand for paper coatings. The consumption of milk casein in 1936 by the coating industry was approximately 17,000 tons. In past years there has been a considerable amount of this tonnage imported. This soybean development should make the paper industry in this country independent of outside sources of casein.

Rapid progress is being made in the development of new types of adhesives which are superior in many ways to those made from imported starches, gums and dextrins. The plywood industry, which, growing to large proportions, has found that soybean proteins are superior in their adhesive qualities to the glues formerly used. One such plywood plant in the Northwest is using the soybean crop of 60,000 acres.

Artificial leather contains its proportion of soybean oil. Celluloid, glues and cements, glycerine, linoleum, oil cloth, printers' ink, rubber substitutes, varnishes are all in whole or in part made from soybean products. When we consider the fact that 40 per cent of the weight of the more than forty million bushels of soybeans which were harvested last year, or 960,000,000 pounds, was in the form of protein, or as it is frequently called, casein, because of its close resemblance to milk casein, the possibilities in the industrial utilization of this enormous tonnage of a very valuable basic material produced directly from the beans instead of milk casein resulting from the metabolic processes of the cow are very great. When chemists and industrialists study the physical and chemical qualities of soybean proteins as thoroughly as they have studied the values inherent in coal tar we may well find that a score of new industries have been built out of the chemical components of this new crop.

It is encouraging to know that the Federal Government, acting under the provisions of the Bankhead-Jones Act passed in 1935

which authorizes and directs the Secretary of Agriculture to conduct research relating to the development of new and extended uses for farm crops, has recently established at the University of Illinois a research laboratory devoted to the study of the industrial utilization of soybeans and soybean products.

I have referred to another farm crop, the crop which, with the possible exception of the dairy crop, has brought more wealth to many of our farmers than all other crops combined—the wood crop. For it is a farm crop, just as much as hay or cotton, only it isn't an annual crop. It is harvested when ready for the market. No matter what form it takes when it leaves the farm it is a crop of cellulose very similar in composition to cotton, flax or hemp. As wood pulp it has a market value of about two cents a pound, a lot less than the value of cotton or fibrous materials. But it goes to a different market, most of it—the paper market.

In 1936, we produced 10,308,000 tons of paper. About 4,017,332 tons or 39 per cent of this was produced from imported wood and pulp. In addition to this we imported 2,389,085 tons of printing paper so that a total of 6,406,417 tons of our paper was imported or made of imported wood and pulp. This is over 50 per cent of our total paper consumption of 12,490,824 tons. We paid $161,033,324 for this imported paper, wood and pulp.

The forestry experts at Washington have made a thorough study of this subject. They know where our wood pulp harvest is, they know how large it must be to supply our needs fifteen years ahead. Thirteen per cent of that crop will be taken from New England farms, 30 per cent from southern farms, 28 per cent from the great forests of the Pacific Coast. It would seem to be sound agricultural policy to take steps to get this crop ready for the home market. But before it can be turned into saleable product a lot of research work has to be done.

Years ago the only wood thought suitable for pulping was northern white spruce. Now pine and poplar in the North, and very recently, since Dr. Charles H. Herty, who has brought more wealth to the South than any man since Eli Whitney, found how to use them, loblolly pine and long leafed pine in many southern states are an acceptable raw material for the paper mills.

Today 17 new paper plants now under construction in the South represent an investment of over 100 million dollars and will have a combined capacity of more than 5,000 tons a day.

Those familiar with the possibilities of this new development; the perpetual supply of rapidly growing pine available; and the economy in operation, forecast this is but the beginning of a new

half billion dollar paper industry that will be established in the South within the present generation. Millions of acres of worn out cotton lands thus will be re-seeded in pine; permanent progress will be made toward solving the surplus cotton problem.

What has to be done to open the markets to many new types of wood products? Certainly it is high time both farmers who grow the wood crop and industrialists who will manufacture it knew more about the potentialities in wood cellulose, wood sugars, lignin and perhaps a dozen other values now unappreciated or looked upon as nuisances to be discarded at the pulp mills.

It is these potentialities, and not the values for box board and light lumber which will give to the farm wood crop of the next fifty years far more millions of dollars of value than did the timber lots of bygone years. Where are these values? How can they be acquired? What must be done to secure them? They lie in the laboratories of the scientist. They can be had only by patient, continued research. They can be purchased by the investment of money, brains and immense effort in the solution of the problems of the conversion of wood into better pulp for paper, purer cellulose for rayon, cellophane, cellulosic films of infinite variety and use, plastics which can be molded into far better forms than are now made directly from lumber.

For many years the production of turpentine and rosin and products of southern pine commonly known as naval stores has used the labor and added to the wealth of southern farmers. But the naval stores industry is not prosperous. Its products are not needed as much as formerly. New materials are reaching its market. The thousands of turpentine stills which were once thickly dotted over large areas are producing less year after year. And yet a new industry based on the values of rosin is growing into large proportions. But it is not a little still in the piney woods; it is a Chemurgic industry created by chemists who have discovered how to extract riches out of pine stumps.

The stump of the first southern pine tree cut down to build a cabin or cook a meal is still cumbering the ground in which it stands unless it has been grubbed out by a settler to make room for a crop of corn or cotton. For the fat content of rosins kept the stump from decay and indeed the older it is the richer its store of rosins. And these rosins are soluble in solvents like gasoline. So all that seemed necessary to do was to dig up the age old stumps, grind them up into fine slivers, put them in cookers to soften under the influence of steam which was itself helpful in distilling off a portion of the fat, and then to digest the pulpy mass with a suit-

able solvent. But there was little profit in the business at first. The products were still rosin and a little turpentine.

And then a few years ago the research chemists stepped into the picture and showed that the laboratory of old Mother Nature had been at work and had synthesized a lot of new products from the turpentine, one of which was named pine oil.

Pine oil has always stimulated a great deal of speculative interest as a potential raw material for chemical processing. It has been the principal source of the perfume base, terpineol, for some years. It perfumes most of our soaps. It was, a few years ago, the fragrant ingredient of bathtub gin. And today it is the material out of which camphor is synthesized, the camphor which until our chemists found out what camphor was and how to put it together came to us from Formosa. And these are but a few of the values in those pine stumps. Some sixty more are now being made and each month the chemists, intent on applying Chemurgic principles, are finding another product for which the world is waiting.

The basic problem in all Chemurgic industries is a dependable supply of suitable raw material at reasonably stable prices. Probably power alcohol is particularly dependent upon this arrangement since the product sells into a market of very low profit margins and well stabilized prices. The price at which power alcohol may be sold is practically determined by the cost of the raw material used in its manufacture so that the cost of the alcohol varies as widely as do raw material prices. The tremendous variability in farm product prices cannot possibly be absorbed in the manufacture of alcohol blends. The power alcohol industry can pay $20 per ton for feed grains on the average, need never pay less than about $15 and cannot pay more than $25 per ton. Over a long period, the average farm price for feed grains in the central states has been $16 per ton.

The variability in farm product prices will automatically diminish as the Chemurgic industries take larger and larger proportions of the total farm crop and present uncertain crops are replaced by others less affected by adverse weather conditions. Stabilization of farm product prices at levels mutually satisfactory to grower and user depends upon large industrial markets, and the development of the large industrial markets is dependent upon stable material prices. Discovery of the solution for this basic problem becomes the most urgent question before the Farm Chemurgic Council and the conversion and processing industries.

What is being done with soybeans and corn, with wood and its lignin wastes, with sweet potatoes and dairy by-products can be and will be done with all of our crops which produce fermentable

starches and sugars; which contain fibers of cellulose, whether they are cotton or wood or hemp or flax; which are rich in proteins for plastics and oils for paints. And there will remain new crops to be grown on millions of acres, crops which now keep foreign labor busy while our own workers look for jobs, such as the tung trees along the Gulf Coast, cork which comes to us from war torn Spain but which should be an important California crop, pyrethrum for insecticides which we can easily grow at home but which we still import from Japan, tannins needed to make our leathers which should be a domestic instead of an imported crop, flax and hemp fibers which our own farmlands will produce in ample volume whenever we decide to make our own linens and cordage instead of going to Asia for jute, Mexico for sisal, and Ireland for linens.

All of these new crops and a score of others can be profitably grown at home just as soon as the farmer, the scientist and the industrialist realize that they have a common problem which, though easy to understand but less easy of accomplishment, is still certain to be done in the years ahead.

Farm Chemurgic Council has not engaged in research work. It has believed that the Federal and State Governments and private industry was equipped with laboratories and with men able to carry on necessary research work. It has felt that its purpose was to stimulate research work, perhaps on occasion to direct the interest of investors into new fields, and always to emphasize the necessity for carrying on studies in every field which will find new uses for the farmer's crops of starch and cellulose or to help him to divert land now growing surplus crops to new and non-competitive crops.

Farm Chemurgic Council makes no claims for new achievements in any of these fields. It is satisfied to be of help in bringing into closer relationship the farmer whose land and labor is not fully occupied, the scientist who is seeking to apply new truths and the industrialist who realizes that every pound of a farm crop which finds a use in his factory puts new money in the hands of the farmer and opens a wider market for the products on which our whole economy rests. In these sound and practical ways Chemurgy will contribute substantially to the stability of the social order. It will help to silence the quacks and the purveyors of promises. It will operate in the full recognition of the fact that work and sacrifice alone produces wealth. In its scientific and factual approach to production and distribution rests the triple hope that we may save what we believe to be valuable in our existing institutions; that we may be fair to those who have not yet shared widely in the wealth of this country; and that we may build an enduring prosperity.

ECONOMIC ASPECTS OF NEW INDUSTRIAL OUTLETS FOR AGRICULTURAL PRODUCTS

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Many are the claims that have been made in behalf of the economic importance of the prospective industrial outlets for agricultural products. These claims unfortunately have not been wholly free from promotional interest. All too often they have been greatly exaggerated. In order to avoid some of the confusion that has arisen out of these claims I wish at the outset to call attention to a few of the more obvious fallacies that are current.

1. Industrial utilization of agricultural products is not something new.

The first wheel ever made to carry a load was probably made of wood. As industry developed it drew increasingly upon vegetable fibers—jute, hemp and cotton—upon wood, and other farm products. Even packing plants which specialize in meat production for years have made from the animals that they process scores of non-meat products which enter into industrial channels. Agriculture has long been engaged in producing many products which are used as raw materials by industry.

2. Research to discover new industrial uses for agricultural products is also not new.

The highly practical and useful turn that is given to the application of physical, chemical and biological sciences in our educational system, both in the classroom and in the laboratory, has tended to emphasize work contributing to such new industrial uses. The agricultural experiment stations and several of the leading scientific bureaus of the United States Department of Agriculture have for decades stressed research in this sphere. The apparent attempt to make it appear that the idea of aggressively promoting this form of technological progress through research, as being of recent origin and of the particular province of those promoting it, does a very distinct injustice to the many research workers and agencies who have pioneered in this field and who are carrying forward substantial and well-formulated research programs.

3. It does not follow that a new industrial use for an agricultural product is an economical use of resources simply because it has become technically feasible to make the product.

This fallacy while obvious is all too patent in the inferences and claims that a new discovery means a new use that pays. If the new discovery combines existing resources at a price that makes the

product cost more than it is worth, the fact that it is technically feasible to make the product does not bring it into the economic sphere. It is technically possible to make diamonds out of sugar and rubber out of numerous plants which grow in the United States. However, to do so would be a poor use of our resources considering the present alternative cost of these products. It is to be regretted that all too frequently men who are distinctly competent in solving technical problems involved in the industrial utilization of agricultural products permit themselves to become strong advocates in promoting the production of what they have found technically possible regardless of whether it is a wise use of our available resources, that is, regardless of economic considerations. Why this gap in objectivity and lack of appreciation of the principles involved in alternative cost and prices is indeed puzzling.

4. A sibling of the above fallacy is the belief that because it has become technically feasible to produce a new product its production should be facilitated if necessary by outright subsidies.

Those who argue special taxes and tariffs and other forms of benefit to promote the manufacture of such new products have no concept of what it means to a society to maximize its output of goods and services. From the standpoint of the best use of a nation's resources it is no more uneconomical to penalize and restrict technological advancement in spheres in which it pays than it is to subsidize new developments which cost more than they are worth. Even the infant industry argument to the extent that it rests upon the effects such new industrial uses for farm products are likely to have upon cost of production in agriculture are wholly without foundation.

5. The discovery of new industrial uses for farm products is not a substitute for international trade.

New uses probably will alter the character of the goods and services exchanged both within and outside a country. The comparative cost structure among occupations and regions, as well as among countries, will become more intricate. But the assertion, all too frequently made, that technological progress in this field will result in there being no gain from specialization, whether domestic or international in scope, in the uses of scarce resources is wishful fallacious thinking motivated all too frequently by a vested interest in given trade barriers.

One of the most vicious phases of the dramatization that has been taking place the last few years stressing the importance of the industrial utilization of agricultural products has been the vast amount of sheer propaganda that has gone forth designed to show

that technological progress in finding new industrial outlets for farm commodities of necessity supports the political doctrine of economic nationalism. The argument runs about as follows: This is the age of farm chemurgic. Our technicians today can make virtually anything that we want. Therefore, why be dependent upon producers abroad. All that is necessary in order to get the things produced in this country is to protect the potential producer from imports from abroad. The attempt to link research with the goal of national self-containment has been quite unfair to scientific workers in our laboratories. It has made them the subject of much unnecessary criticism. Surely the scientific character of their work is wholly independent of the ultimate political philosophy which dominates the affairs of a country.

Whereas in an economic analysis there can be no quibble on the point that advancement in the industrial utilization of agricultural products does not and cannot in any way lessen the potential gain from international trade when there is a difference in the comparative cost among countries.

6. Plans to promote new industrial uses for farm products is not the equivalent of a national agricultural policy.

A national agricultural policy because of the character of maladjustments in agriculture and because of the many goals a nation wishes to achieve must of necessity be many sided. The roots of the farm problem are indeed numerous. It involves monetary disturbances, price rigidities, the impact of booms and depressions. monopolistic competition, submarginal farming areas, farm tenancy and the sudden shift in market outlets, especially for farm exports. Steps to hasten new industrial uses for farm products, however, have little direct bearing upon most of these problems. Such steps are at best only a small part of a well conceived and balanced national agricultural policy.

7. A new industrial use for a given agricultural product, assuming that it pays to produce it, does not necessarily represent an additional demand.

It is quite exceptional to find a new use which does not to some extent act as a substitute for the already existing demand of some other farm products. Frequently the new use merely replaces other outlets of the same products. For instance, soybean oil finds an outlet through vegetable compounds; thus it competes directly with lard. Accordingly with corn and soybeans as alternative uses for the same land and with lard and soybean oil competing in the edible fat and oil market an expansion of the vegetable compound outlet for soybean oil is not a wholly additional demand for corn

belt products. Similarly cotton converted into cellulose used to make rayons replaces in part other cotton outlets. To make it appear that new industrial outlets are that much gain in the net aggregate demand for farm products is usually claiming too much.

8. New uses for farm products of the type that are under consideration do not, as a rule, lower the cost of production of the farm commodities involved.

The discovery of how to make motor fuel out of corn does not, in itself, lead to a reorganization and lower costs in corn farming. The discovery of new industrial outlets for commodities produced on farms is not likely to lead to large scale operations in agriculture, and accordingly the economies supposedly associated with such operations are not forthcoming. The operating unit and its internal efficiency are likely to stay about the same. Accordingly, there is no direct and necessary relationship between a new use and cost of production.

Some positive observations may now be made of certain economic aspects of new industrial outlets for farm commodities.

New industrial outlets are most likely to present themselves at the bottom end of the demand schedule. For instance, when supplies are relatively short the demand for potatoes is of such a character that virtually all of the crop is used for human consumption and none as industrial raw material. When the potato crop is large, however, the demand tends to absorb the crop at the bottom end of the schedule where it characteristically becomes much more elastic. As the lower end is approached additional uses are forthcoming. At some point potatoes become cheap enough to warrant making them into starch. Or take corn. At customary prices corn is probably too expensive to be used in making alcohol intended for motor fuel, assuming the current and short run prospective price of gasoline. But even at the present stage of technology, that is, the cost of converting corn into alcohol, when crops are extremely large and prices accordingly cheap it may pay to use corn to produce motor fuel.

We may generalize, therefore: that as the economic feasibility of new industrial uses are realized these uses are likely to become operative at the lower end of the demand schedule for the farm product and that the demand for most farm products becomes distinctly more elastic as the lower end is approached.

This raises two corollary questions of considerable import:

1. To what extent are new industrial uses which now appear

potentially economical, a means of using crop and animal surpluses in years following big crops;

2. Will it pay to establish industries which are intended to operate only in years when such surpluses and low prices appear.

In corn in years when crops tend to exceed materially, let us say $2\frac{1}{2}$ billion bushels, are there now available industrial outlets which can absorb the additional crop at prices on farms in the heart of the corn belt in the neighborhood of 40 to 50 cents per bushel. To the extent that this is possible, it would tend to make use of a part of the large crops and thus tend to lessen the subsequent expansion which manifests itself in the livestock industry following large corn crops. Such outlets would be a natural counterpart of a storage program in feed grains designed to stabilize feed supplies with a view of evening out the production of livestock products.

For an industry to depend wholly upon big crops and low prices presents many difficult operation and managerial problems. It means that such an industry would have to stand idle in years of small crops and even in years of average sized crops ready to come into the field when supplies are large and prices low enough to warrant operations. Obviously, how to manage, the cost of depreciation, interest charges, and other expenses of production converging upon the years when the plant operates raises serious obstacles. Nevertheless, in general, it is precisely in this sphere that many new uses for farm products are likely, if at all, to establish themselves. It is a sphere in which there is of necessity much risk and uncertainty, certainly to a much larger degree than is found in the more typical entrepreneural establishments.

Once the technical process, let us say, of converting corn into motor fuel, is sufficiently well developed so that it can compete when corn prices are about normal (in years of average crops), then the corn-fuel industry also would stand to gain from less widely fluctuating supplies. Their interest in more stable corn supplies would then become parallel to that of the animal enterprises on the farms where corn is used for feed.

It needs to be stressed that because of the fact that new outlets are likely to find production profitable when supplies are large and prices low, that those who become involved in their production tend to find their interest identified with the production of surpluses and low farm prices. This identification may tend to discredit, from the viewpoint of producers, the true merits of developing industrial outlets which become operative when large surpluses have accumulated.

A close corollary to the above reasoning is that new industrial

uses will tend in general to make the demand for farm products more elastic. This is significant in two ways, namely:

1. The more elastic the demand becomes the less the necessary range in prices required to adjust consumption to variations in the amount produced, an elementary principle in economics, which signifies that new industries will tend in this respect to stabilize farm commodity prices.

2. Since the new outlets involve primarily derived demands expressing themselves through industry this introduces also an important source of price instability.

There evidently exists in industry a peculiar response to the cyclical behavior of the present day economy. Industry is distinctly affected by this rise and fall in economic activity. It accordingly follows that to the extent that the demand for farm products becomes increasingly derived and industrial in character, to that extent it will be more closely linked to business booms and depressions. This linkage is well seen in the difference in the market for cotton in contrast with the demand for, let us say, wheat during a business recession and the subsequent period of recovery. In the main farm products which are used as raw material in industrial products are much more subject to the vicissitudes of the business cycle than are those which enter consumption channels more directly. In brief, it means that the increased industrial utilization of farm products will result in agriculture becoming more and more the tail of an industrial kite with agricultural prices and income rising and falling with the kite.

Discussion by F. L. Thomsen

Bureau of Agricultural Economics

Dr. Barnard's paper consists largely of a review of the desirability of opening up wider markets for farm products, through the discovery of important new industrial uses, and a statement of hope that the chemical engineer may be able to do something about it. The recital of actual accomplishments may be considered merely as indicative of directions the search is taking. Dr. Barnard evidently has much faith that this search eventually will prove fruitful.

The economist muddling around with his hard-to-prove theories and inexact quantitative measures must always be impressed with the wonders of chemistry, and perhaps envious of the unarguable statements which the chemist is able to make concerning relationships among the chemical elements which go to make up his findings and products. When it comes to the subject at hand, however, it appears that both the chemist and the economist are relegated largely to the field of interesting speculation, and are forced to draw liberally upon their imaginations. Dr. Barnard has drawn upon his, and I may be excused for following by the same method along somewhat different paths.

Probably thousands of chemical by-products which can be made from farm products as raw materials could be listed, and no doubt as many others will be discovered in the future. These products have added greatly to the comforts and pleasures of living, and no doubt will add much more in the future. As yet, however, they have not added greatly to the sum total of market outlets for farm products. In this respect, the increase in new uses for farm products has been similar to the increased volume of airplane traffic, which although spectacular has not yet played a large part in the total volume of the transportation industry.

Based on our present knowledge, it would appear that the probable future development of multitudinous little new uses for farm products and by-products will not greatly change this situation. Even in the packing industry, where the utilization of what were formerly waste materials has been highly developed, income is derived mainly from the principal products.

It must be remembered that as new products and new uses are developed which add to the markets for agricultural raw materials, new chemical developments also are contributing to the substitution of other products for materials made from agricultural commodities produced in this country. To cite only a few examples, we find synthetic materials being substituted for leather in shoe manufacturing, fish oils and foreign produced vegetable oils for domestic fats and oils, glucose made from tapioca for that made from corn, synthetic flavors for natural fruit flavors, and cellulose products for cotton. A number of chemical developments, also, have led to the substitution of one type of farm product for another, as in the manufacture of paper sizing from soybeans to partly replace sizing made from corn or potato starch.

There is a distinct possibility that commercial synthesis of vitamins may reduce our dependence upon farm products for these valuable food elements. The substitution of pills for spinach might not be regrettable, but fruit and vegetable producers might view with alarm a general tendency to substitute them for salads, citrus fruits and other horticultural products.

According to a report of the National Resources Commitee, "Synthetic processes might conceivably be used to produce fats, carbohydrates vitamins and hormones," although under present conditions the cost of such commercial synthesis makes it impossible to compete with the natural products. Likewise, compounds have been produced from petroleum which might to some extent compete with vegetable drying oils. The Natural Resources Committee sums it up by saying that "the supplanting of farm products by non-agricultural products, as industrial raw materials, is already well under way in certain lines. There is, too, a possibility that uncultivated agricultural products will become raw materials to compete with farm products."

But the developments of science which have led to a reduction rather than an increase in the markets for farm products are not confined to chemistry. We must not forget the way in which automobiles and tractors have replaced horses, and thus led to a large reduction in the use of feed crops for producing power. Taking into account all types of technological developments, it is probable that the outlets for farm products have been diminished rather than increased within the past quarter century of

progress to which Dr. Barnard so glowingly refers. All of this has been in the direction of progress and higher standards of living, and a continuance of the trend is to be greatly encouraged, but we need not fool ourselves by assuming that all of the scientific developments in store for us will lead uniformly in the direction of wider uses for agricultural raw materials.

In this connection, what appeals to my imagination as one of the most important possible future developments in the utilization of farm products is with respect to cotton. The mechanical cotton picker is now the subject of much public discussion, but I am inclined to believe that in the not too distant future it will be a museum curiosity like other present day cotton machinery. Technological improvements in cellulose textile materials have been much more rapid in recent years than the improvements in machinery for cotton harvesting, and give some promise of revolutionizing the entire cotton industry, from farm to mill. Instead of growing relatively small yields of staple cotton, we may soon be growing three thousand pounds to the acre of cotton plants yielding a high grade of raw material for the cellulose industry, with harvesting by relatively simple automatic mowing and baling machinery, and costs all along the line greatly reduced. While this would tend to increase the quantity of farm products consumed, its net effects upon southern farming might be favorable or unfavorable depending upon other circumstances.

Two other possible developments with respect to new uses for farm products which have been frequently discussed are alcohol as a substitute for motor fuels, and synthetic rubber made from domestic plants. The production of both of these products is chemically feasible but not economically practicable at the present time. It has been predicted that the domestic production of petroleum products will begin to decline within the next decade, and it is always possible that international developments will necessitate greater dependence on domestic production of raw materials. At the present time, however, the commercial development of these industrial uses for farm products on any large scale does not appear likely.

Surveying these broad and general, and sometimes conflicting tendencies, it would appear that the farmers cannot rely very much upon chemurgy for any early marked increase in the markets for farm products in general; and the economist, likewise, may continue to offer plans for increasing demand or adjusting productive processes without much expectation that his calculations will be offset by startling new developments in the field of utilization, with the possible exception of cotton to which reference already has been made. And may we hope that ten years from now some of our chemurgic friends may look back at this prediction and make some remark about "just another economist gone wrong."

Discussion by J. E. Lattimer

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Dr. Schultz's paper goes a great way in demolishing the hopes continually portrayed that industrial outlets for farm products offer substantial relief to agriculture. That this task was necessary and in this case thoroughly done most of us will willingly agree. Perhaps the job was too

thoroughly done in that it proves too much and in this way the general case possibly is a trifle weakened. No doubt this was intentional.

In this discussion the word "new" was left out of the title of the paper just given. This was done deliberately as after using this word in the title the first part of the paper stresses the point that the industrial outlets for agricultural products are no new thing. The paper thus while using the word new in the title proceeds to discuss the possibilities of expansion of industrial outlets. This opens the door for a discussion of secular trends in industrial outlets which we may note later.

The paper leaves the impression that there is small hope of any economic benefit to agriculture from new industrial outlets and then concludes by saying that the greater the dependence of agriculture on industrial outlets the greater the elasticity in demand for farm products and the consequent accentuation of booms and depressions in agriculture as in other lines of business. This almost amounts to saying that no benefit can occur and at the same time saying that the results will be bad. If the first contention is correct why worry about the results.

With the conclusion that increased dependence on industrial outlets means greater elasticity in demand for farm products and greater susceptibility to booms and depressions in agriculture all must agree. The illustration of cotton is a happy one. Another might be mentioned such as meat and hides. Meat while one of the most elastic of food products is not quite so elastic as the hides which cover the meat judging by the price variation in booms and depressions. And hides depend more completely on industrial uses than does meat.

It is the earlier part of the discussion that leaves such small hope from expansion of industrial outlets that accounts for the appearance of some contradiction in the paper. The valuable contribution contained in the conclusion would have had a firmer foundation had greater possibility been allowed in the first part of the paper for expansion in industrial outlets for farm products.

There are three points in this paper bearing directly on economic theory which merit further elaboration. One is the reference to the law of comparative costs. Another is the greater the elasticity in farm products the greater the stability of prices. A third is the idea presented that it is no more uneconomical to penalize technological advancement than to subsidize new developments that cost more than they are worth.

Most explanations of the law of comparative costs which have come to my notice conveniently leave out of consideration, for the alleged purpose of simplicity, such small matters as transportation costs. It is claimed and agreed that the difficulties of agriculture are in part due to rigidity of prices of some other things. If and when transportation costs amount to more than the price of farm products at the point of production and recent years have demonstrated that this may happen: then it is difficult to demonstrate the law of comparative cost as well as to practice it.

That the greater degree of elasticity of farm products the greater should be the stability of prices has been demonstrated in Canada during recent years. By comparing the farm prices of the years from 1931 to 1935 inclusive with that of the five preceding years it was found that potatoes showed the greatest decline, wheat next in order, then live stock, dairy products and sugar beets showed the least decline of the products com-

pared. There is no statistical evidence of increased consumption for human food of either wheat or potatoes locally during that time. On the other hand there is considerable evidence of increased consumption of some of the other products where elasticity is greater and possibility of substitution more evident even though the change in price was less pronounced.

Perhaps the most important point in economic theory is the degree to which nations have during recent years prevented by regulations the natural correctives. That the stabilizing of prices acts as a break on technological improvement is also an elementary principle of economics. To the extent that the inefficient producer is retained in the business by any means whatever technological advancement is retarded. All countries appear to be following this policy to some degree. Perhaps this is one reason why there appears so much need for continuous pumping after the pump is primed before the water comes in a regular supply. When this is necessary it is generally on account of the sucker refusing to function.

It is mentioned at the outset in support of the contention that industrial utilization of agricultural products is not something new that the first wheel ever made to carry a load was probably made of wood. Later in the paper rayon is mentioned made from cotton cellulose. Up North, not having a cotton belt, we make rayon from the cellulose of wood. Whether wood is included or excluded from farm crops makes a considerable difference to a discussion of this subject. Leaving wood out of consideration it is estimated that only twelve per cent by value of farm products are now used in industry, but forestry products and agriculture furnish one-third of the raw materials of industry.[1]

The expansion in the use of wood cellulose in the textile industry and in wrappings of various form, some of which like cellophane have come into general use during the depression, is of special interest to those countries where farming and forestry is closely allied. If and when the farm woodlot becomes the source of supply rather than virgin forests this importance may increase.

The possibility of some expansion in industrial outlets whether "new" or "substituted" is present if long-time trends are considered. Before the standard of living was raised by the provision of industrial outlets for agriculture and international trade, that we all hope shall expand, was made possible, feast and famine alternated according to the seasons. In the handicraft stage, and we shall not go back as far as when the first wheel was made to illustrate our point, when many more people lived *on* the farm but not entirely *by* farming, it required in some sections nine farm families to support one family in industry. Now it is claimed that one family farming is able to produce farm products sufficient for seven extra families. This is a change that has taken place relatively recently.[2] Booms and depressions occurred at the earlier date but they were not so severe in their incidence as they now are. And for the reason that transportation, refrigeration, and international trade—and we trust that none of these developments have yet run their ample course—have driven the producers of different things into different camps where their products

[1] Sir Harold Hartley, "Agriculture as a Potential Source of Raw Materials for Industry." *Journal Textile Institute*, Vol. XXVIII, No. 7, p. 171. London, England.

[2] Secretary Wallace. *Consumer's Guide*, Oct. 4, 1937.

may be exchanged less regularly and hence booms and depression are both greater in intensity.

Increased dependence on industrial outlets and on international trade have made surpluses of farm products possible. It has also made the standard of living generally higher. The higher the standard of living generally prevalent, the smaller the proportion spent on farm products, mainly food and the greater surplus of purchasing power left for expenditure on other things. Demand for other goods is more elastic than for food products. Possibilities of expansion in volume of consumption is much greater in other goods than in food products. Granting that in the recent past the volume of consumption of other goods is much less regular than for food, is there any justification for the assumption that these irregularities need continue? The issue above all others is that of securing more regularity of purchasing power which implies more regularity of production and employment. One of the means to that end is a general rise in the standard of living which is conditioned by and promotes the expansion of industrial outlets for farm products. In conclusion, general agreement with the main points in the paper must be expressed.

WHAT SHOULD BE DONE ABOUT FARM TENANCY

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Tenancy has an important place in the capitalistic system of commercial agriculture. The question is not whether tenancy should exist, but rather, how much tenancy and what kind of tenancy will yield the maximum well-being for farmers and for the nation. There is more ground for surprise that 26 per cent of the farmers of the United States were tenants in 1880 than that 42 per cent were tenants in 1935. In 1880, free land was abundant and was rapidly being taken up under the Homestead and other federal Acts. In 1935, a generation had passed since good free land was available. A study of the annals of American agriculture shows that during the time when there was plenty of free land on the frontier, many families preferred to "stay behind and live" rather than press forward, suffering the hardships of pioneer life, in order to take advantage of the opportunity to become the owners of farms.

At the present time, there are many families which prefer the security and the profits of tenant farming on good land, under a good landlord, to venturing upon the precarious task of buying a farm on credit, with no assurance as to the future prices of farm products in their relation to the fixed indebtedness which would have to be incurred.

In attacking this problem of what should be done about tenancy, we must first determine whether or not there is too much tenancy, and whether or not there are bad kinds of tenancy. The question has often been asked, "How much tenancy is a good thing in the United States?" The working hypothesis was set up some ten years ago that perhaps 30 per cent tenancy was about the right amount to give young farmers a chance to climb the agricultural ladder from hired labor through tenancy and mortgaged ownership to the free ownership of land. There were, in 1935, 26 states in which tenancy did not exceed over 30 per cent. There were 15 states where the percentage of tenancy was over 40 per cent; of these, ten were cotton states and the others were Illinois, Iowa, Kansas, Nebraska, and North Dakota. There were seven cotton states with more than 60 per cent tenancy. Thus the problem arising from too much tenancy is to be found primarily in the cotton belt, in the corn belt, and in the West Central wheat states.

It is a noteworthy fact that in the northeastern part of the United States, the percentage of tenancy is appreciably lower at the present time than it was in 1880. The high percentage of tenancy in the corn belt is on land which was very cheap in 1880,

but which, in the meantime, has soared to fabulous prices, and then dropped back as a result of the depression. In other countries as well as in the United States periods of depression following periods of inflated land values have been periods when large numbers of encumbered farm owners have been shaken off the agricultural ladder.

In the southeastern states, the high percentage of tenancy is a by-product of the old antebellum plantation system and the efforts at agricultural reconstruction following the war between the states. The high percentage of tenancy in the newer cotton areas of the Southwest is the natural product of the conversion of large cattle ranches into small cotton farms.

Recognizing that tenancy is a part of our agricultural system and that the right amount of tenancy of the right kind is a good thing; that no amount of tenancy of the wrong kind is a good thing, and that too much tenancy is a bad thing, there are two lines of attack to be made on this problem. One relates to the improvement of the relation between landlord and tenant. The other relates to the means of facilitating the acquisition of landownership by farmers.

There are some things which should be done which will, at the same time, improve the tenancy system and facilitate the acquisition of landownership.

A. *Things Which Will Help in Both Regards*

1. The starting point in solving the tenancy problem is better rural schools. Better elementary and secondary education will prepare youth for a wider choice of occupations and in a measure reduce the excessive competition of farmer with farmer, which enhances rents and land values at the expense of operator incomes. Increased education for rural youth will not only facilitate the flow of surplus farm population into other occupations, but will also put farming on a more intelligent basis. Furthermore, more education will tend to reduce the birth rate in congested rural areas in the interest of higher living standards. It has been said that nothing would do more to reduce the high birth rate in certain congested agricultural regions than to give every farm girl the opportunity for a high school education.

2. Better education should be supplemented by vocational guidance. The basis for better vocational guidance for rural youth is the availability of full information with regard to the possibilities in the various occupations. A project is already under way, centering in the Department of Labor in Washington, D. C., for the development of an occupational outlook service which will provide

a description of the various occupations, the kind of a life they provide, the entrance requirements, the number of people in the occupation, the number of apprentices, and the number of persons in the school system who have declared their intention to enter each of the various occupations. When information of this kind has been adequately perfected, rural boys and girls with a high school education and with such vocational education as may be provided within their reach, will have the basis of intelligence and outlook to move more freely into the various occupations in such a manner as to help bring about a proper balance with respect to the number of people employed in the various lines of production.

As indication that a freer flow of the surplus farm population into other occupations will go far towards solving the problem of excessive tenancy, note that in the northeastern part of the United States, where industrial development has gone on rapidly during the last century, and where it was an easier matter for farm youth to move from rural to city occupations, tenancy has declined. Whereas, in other parts of the United States, more remote from the centers of industrial activity, tenancy has increased. It was true in England at the close of the last century that the agricultural laborers in the north of England had better wages, a better living standard, and a much smaller percentage were dependent upon old-age relief than was true in the south of England where the farm population was more remote from the great industrial centers. The right type of vocational guidance and the right type of vocational information in the form of an occupational outlook service, that will not only provide a fact background with regard to the various occupations, but current information with regard to recent trends and the present situation will do much to overcome the disadvantages of the rural youth located in the more remote agricultural areas. With an intelligent distribution in the occupations of all the gainfully employed, those employed in agriculture will receive larger real incomes which constitute the essential basis of improving the economic status of the farmer.

3. There should be equally open doors into all occupations for those properly prepared for entering. This flow into the various occupations must take place if there is to be a proper balance between the numbers employed in the various occupations, or else equally effective artificial barriers will have to be set up against the entry into the occupations which now practice the open-door policy. A general practice of restriction of entry into occupations would leave vast numbers of people outside of the economic system which, of course, would be intolerable. It could be justified by any given group only as a temporary war measure in the intergroup

struggle. It cannot be justified at all in a rational national policy. It is contrary to the spirit of the Constitution of the United States. The privately controlled entry into any given occupation is the beginning of an occupational caste system such as that in India.

It is believed that points 1, 2 and 3 not only constitute the starting point in solving the tenancy problem, but also provide the most rational approach for securing a fair share of the national income. A right distribution of the population among the various occupations is the essential basis of that balance in production which will provide the basis for an equitable exchange of the produce of the farmer for the products and services of those engaged in other occupations.

B. *Things Which Will Make Tenancy More Satisfactory*

1. The tenancy problem is first of all a human problem rather than a land problem. The first thing needed is an intelligent understanding of the mutual interest of landlord and tenant. It is a matter of common observation that intelligent landlords who have carefully selected their tenants for honesty, industry, skill, intelligence and thrift, have no trouble and the same tenant remains on a farm indefinitely, or until he moves to a farm of his own. It is a truism that the best landlords who have the best land are able to secure the best tenants to the mutual interest of the landlord and the tenant. It is the scalawag tenant, dealing with a scalawag landlord who has poor land to rent, that causes the greatest difficulty in adjusting the relation between landlord and tenant, and here again it is education, both moral and intellectual, along with a better system of farming and soil conservation, that can be looked to as a first step in improving this situation.

2. Fundamental in a good leasing system is a fair cash rental, or in share tenancy, a fair share basis with respect to what each party is to furnish, and the division of the proceeds. Where tenancy is the rule, regional customs develop, which possess a high degree of justice. It is true that the conditions of rental are usually the same for good land and for poor land in a given region, but this is usually compensated for by the fact that the more efficient farmers are able to secure the more productive land, and the less efficient farmers are shifted to the less productive land, so that what the landlord furnishes in each case, in the way of land, tends to balance what the tenant furnishes.

3. Good tenants under good landlords have a high degree of security of tenure, but there are tenants who shift about year after year. All told, approximately a third of the tenants change farms in a given year. If I interpret the statistics correctly, less

than one-fourth of the tenants including croppers are annual or biennial shifters, while more than three-fourths remain on the same farm three years or more.

The census figures for 1930 indicate 12.3 per cent annual shifters and about 11.5 per cent biennial shifters. The figures for 1935 indicate many more annual shifters and fewer biennial shifters, the figures for that year being 21.1 per cent annual shifters and 3.2 per cent biennial shifters. It will be noted that the combined percentage of one and two year shifters was about the same in 1935 as in 1930. Tenants shift less frequently in the corn belt than in the cotton belt. In Iowa, for example, about 11 per cent are annual or biennial shifters, whereas in Texas the percentage is about 31. This difference cannot be charged to the colored population. The southern white tenant is much more of a shifter than the colored tenant.

It is unfortunate that so many tenants are shifters. This should be remedied. The first step is to locate the cause. It may be lack of ability or industry on the part of the tenant, undue exactions on the part of the landlord, the unsatisfactory character of the farm itself, or to economic conditions in other occupations. The remedy for this situation will come largely through education and through the development of honesty, skill, industry and thrift on the part of the tenants, through the setting up of rules for leasing farm land which will hold the bad landlords in line with good practices, through opportunities for employment in other occupations for those not required or unsuited for farming, and by a more equitable interoccupational distribution of income.

In certain corn belt states important steps have been taken. In Iowa and Illinois in particular, tenancy conferences have been held which stimulate the thinking through of the tenancy problem by both landlords and tenants. This should go far toward developing rational and satisfactory methods of adjusting the relations of landlords and tenants. Once good systems have been established by the natural leaders, many others will fall in line. Others may have to be forced into line. History provides examples, particularly in England, where well tested customs become the basis of wise legislation. Since the cotton belt and the corn belt are the major centers of interest in the tenancy problem, it is important that the agricultural economists take the lead in helping the farm people of those areas to develop regional tenancy policies which will serve to guide the statesmen who strive to solve this problem through legislation.

It may be said in passing that the solution of the tenancy problem does not lie in increased government codling of the ignorant,

the unwilling, and the unfit. In so far as ill health is the cause of failure to make good as a farm tenant, the problem is one to be dealt with by the public health service. Here again, education is the basis of ultimate solution.

4. Many of the difficulties of tenant farmers arise out of the question of improvements. In Great Britain, compensation to the tenant for unexhausted improvements and compensation to the landlord for damage to land and buildings has proved a blessing. The application of the principle of compensation has added greatly to the security of tenure. A good deal of time and thought will be required to introduce this practice in the United States. This cannot be brought to pass simply by inserting a clause in the lease, providing for compensation, In fact, at the present time, such a clause might cause a very great deal of trouble for the reason that the ordinary courts are not competent to handle such cases. In England and Scotland, where the system of compensation has been very highly developed, there has developed along with it a system of appraisal which provides a scientific and just basis for the enforcement of the contract. Scattered here and there all over England and Scotland are successful farmers who are competent appraisers and who are called upon to make the adjustment between landlord and tenant with respect to compensation for improvements or dilapidations.

5. Efficiency, thrift and tidyness on the part of the tenant, along with intelligent and generous cooperation on the part of the landlord, constitute the conditions essential to profitable, permanent and happy relations between landlords and tenants.

6. In so far as tenancy is permanent, it should be made a reasonably satisfactory mode of life. The provision of good housing conditions for the farm family by the landlord, and efficient and tidy housekeeping on the part of the tenant's wife, go far toward making farm tenancy a satisfactory basis of life. The maintenance of a good garden for producing flowers and food is also very important in making the life of a tenant farmer a satisfactory one.

C. *Things Which Will Facilitate Landownership on the Part of Farmers*

1. It has long been the view in this country that more important than improving the relation between landlord and tenant is the improvement of the means of escaping from tenancy into ownership. The ability of the tenant farmer to earn and save money which may be available to invest in land is of first importance in the escape from tenancy. In spite of the keen competition that exists in agriculture, the more efficient tenant farmers are able

under normal conditions to make a living and something more. The economic principles underlying differential profits of farmers are well understood by agricultural economists, and need not be elaborated here. The less efficient farmers find it difficult to make a decent living, and are therefore likely to remain tenants unless wealth from other sources becomes available.

2. Gift and inheritance are of outstanding importance in maintaining landownership on the part of farmers. Each generation, every farm must change hands. If it were not for gift and inheritance, and if the full value of the farms had to be earned by each generation of owners, the percentage of landownership on the part of farmers would soon become much lower than it is. This factor is greatly reduced in importance by the fact that a very considerable proportion of the farm wealth of any given generation is transferred to the city through gift and inheritance because of the movement of a considerable part of each generation of farm children into city occupations. The smaller the farm families and the larger proportion of the sons and daughters of the landowning farmers who continue as farmers, the more effective gift and inheritance will be in maintaining landownership on the part of farmers from generation to generation.

3. Another very important factor affecting landownership on the part of farmers is the basis on which farm lands are valued. Unfortunately, farm lands have quite generally changed hands at too high a price to make it easy for farmers to buy farms and pay for them. These prices have been due in a measure to outside competition; that is, the buying of farms by persons engaged in other occupations, but of even more significance is the excessive competition of farmer with farmer, due to the fact that too many of the youth of each generation take up farming as a life occupation.

4. A good system of land appraisal is needed. Farms are often sold for more than they are worth because of the inability of the purchaser to determine what would be a fair price. The appraising of land is not a simple task, and the suggested remedy is the development of a system of public appraisal for farm land which will provide at low cost the information which farmers should have with respect to the value of specific pieces of land. To make these appraisals most useful, they should be accompanied by a longtime outlook report with regard to trends in agricultural production and prices. Good appraisals and good longtime agricultural forecasts would serve to warn farmers against the disaster which follows the payment of too high a price for a farm. Stable money is, of course, a fundamental need.

5. A good mortgage credit system facilitates the acquisition of landownership on the part of farmers, but too much credit may be a bad thing. It is better for a young farmer to remain a tenant under the general supervision of a good landlord until he thoroughly learns the art of farming and until he has demonstrated his ability to make a living and a surplus out of which to save and pay for the farm. It is doubtful if any tenant farmer should make the transition from tenancy to ownership before he can pay one-third of the purchase price. In general, it has been true that the lendlord is more exacting and less helpful than the landlord. Interest, taxes and repairs usually amount to more than the rent of a given piece of land. It would seem wise, therefore, to postpone the day of taking on the heavier payments, although the advantages of landownership are real. The Federal Farm Loan System as administered in the United States at the present time provides an excellent opportunity for securing credit at a low rate of interest. The low interest rate, along with the system of land appraisal which has been developed, can be used by farmers to great advantage, not only in determining whether or not to buy land at a given price, but also by securing funds with which to supplement their savings. Unfortunately, an emotional attack upon the solution of the tenant problem of the United States has resulted in the lending of excessive amounts of money at excessively low rates of interest to farmers who have not demonstrated their ability to farm well enough to make a living, and something more, out of which to save and pay for land. The next ten years will doubtless demonstrate the fallacy of this phase of the Farm Security legislation which has recently been enacted.

Conclusion

The conclusion to which I find myself driven with regard to the question of what can be done about tenancy is that the Federal Government should participate in providing an adequate educational system for rural people, an occupational outlook service, free entry into all occupations, a good credit system, a good system of land appraisal, a stable currency, an open market for farm products, an open market in which farmers may buy consumption goods at a fair price, uninfluenced by excessive tariffs, by monopolistic price-fixing or by monopolistic wage-fixing. If these background conditions are taken care of by the Government—Federal, state, and local—and if the farmers themselves respond to the educational and occupational opportunities, tenancy will, in the course of time, cease to be a serious problem, and will take its normal place in our rural economy.

PROBLEMS OF CROPPERS ON COTTON FARMS

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The typical cropper is a farmer who provides the man labor, as a minimum contribution to farm operations, and shares in common with the landlord the proceeds of production. The cropper may provide, or share with the landlord, certain operating costs, such as fertilizer, seed, and ginning. The division of the proceeds of production between landlord and cropper varies from equal shares to a smaller fractional part for the cropper, the respective proportions depending upon their relative contributions and bargaining strength.

On cotton farms, particularly in the more western part of the cotton belt, the proceeds of production are commonly divided equally between landlord and cropper, and the costs of fertilizer, if used, seed, and ginning are likewise shared equally. In the more eastern states, however, especially on farms using relatively large amounts of fertilizer, the landlord may furnish all of the fertilizer but take two-thirds of the crop. Such expenses are the elastic element in the landlord-cropper contract, and the extent to which they are borne, by the landlord or the cropper, tends to determine the percentage division of the crop. Other adjustments in respect to expenses or conventional shares may be made as a result of either superior or inferior productivity of the land.

The share tenant, by contrast, is a farmer who provides the work stock and farm implements, as well as all labor, and shares with the landlord such expenses of production as fertilizer, seed, and ginning in the same ratio as the division of the crop.

The legal status of the cropper, without modification by individual state law, according to the American and English Encyclopedia of Law,[1] is the same as that of a wage hand; that is, he works for a share of the crop as wages. In some states, however, the cropper is put in the same classification as a share tenant. In other states the cropper contract may be either that of a wage laborer or that of a share tenant, the classification depending upon the intention of the contracting parties. In most states the cropper is given the status of a tenant in common with the landlord of the crop and thereby shares title in the crop with the landlord. This statutory distinction is a matter of some importance because the ownership, or lack of ownership, of the crop affects in some measure the degree of independence of the cropper. While the cropper

[1] Second Edition, Vol. 8, p. 324.

usually relies upon the landlord for subsistence credit, either directly or indirectly, in states where he is given the legal status of a tenant, he has the possibility of using his part of the crop as the basis for credit and, also, from a legal point of view, may exercise some control in the disposition of the crop. Also, as a tenant, he has legal protection against trespass. The flimsy foundation upon which the cropper system rests in respect to control of the land and ownership of the crop, whether evolving from the law or common practice, is a determining factor in the problem of inflexibility to be mentioned later. This significance attaches, likewise, to share tenants in states where all such tenants are legally classified as croppers.

The degree of supervision of the cropper by the landlord varies from occasional visits and general instructions in small-farm areas to detailed supervision of all work on plantations.

In 12 southern states, from Virginia to Texas, there were in 1935, according to the agricultural census, about 678,000 cropper farms, which was 22.7 per cent of all farms in these states. These were found in 1,168 of the total of 1,187 counties. In Maryland, West Virginia, and Kentucky, there were an additional 38,000 in 198 of the 199 counties of these states. The cropper system, contrary to common opinion, did not originate with the freeing of the slaves. It has existed since colonial days, as evidenced by historical accounts[2] and numerous legal citations. The Civil War merely increased the number of croppers. The cropper system arises from a plentiful supply of land for the production of certain staple crops and an available supply of unskilled agricultural workers who are without capital.

Some of the problems of this group of workers are, of course, the same as the problems of other groups of people having little or no wealth and meager incomes. Among these are the problems of health services, housing, and the like. Such groups, being without resources, commonly forego medical care except in extreme emergencies, and it is likely that, owing to inadequate or unbalanced diet and other unfavorable living conditions, the need for such services is much greater than for the higher income groups. Low standards of comfort and well-being may be the lot of poor people in city, town, and country.

While such problems as these require recognition wherever found, it is necessary for the present purpose, in view of the limited time, to center attention on the economic problems, in so far as they can be differentiated, which seem to be characteristic of the

[2] See Gray, L. C., *History of Agriculture in the Southern United States to 1860*, p. 406.

cropper system. In this connection, it is taken for granted that economic and social progress is of primary importance to any group, and that the factors which retard or prohibit such advancement require first consideration. The central problem of the cropper, from this viewpoint, is that of inflexibility in procedure, and the factors which should be mentioned are those which determine this inflexibility.

The cropper farm is limited in area to the amount of land that the cropper and his family can cultivate and harvest. It tends to be limited, in fact, to the area that can be handled during the "rush" seasons of cotton chopping and picking. Most of the land is used for the cotton crop, and hand methods constitute a large part of the work done. The outcome, at best, is a small-sized business. Woofter and others,[3] in their study of plantation croppers, show the average acreage by regions in 1934 to vary from a low of 14 acres per cropper in the Arkansas Valley to a high of 31 acres in the interior plains of Louisiana and Arkansas, and the average income per family, including wages for outside work, to vary from $154 in the lower Delta to $519 in the Atlantic Coastal Plain.

While annual incomes may vary upward or downward according to production conditions and prices of farm products, for the cropper the level is low, with the tendency to become lower. The average acreage of the cropper farm in the upper Delta in 1910, according to the plantation census, was 25 acres, but the average in 1934, according to Woofter and others, was 17 acres.

The cropper farm is not only limited in size but is also inelastic as to composition of enterprises. It consists mainly of a cotton crop, produces little or no feed, and has little or no pasture land. The production of food in any degree of adequacy is exceptional. Planting and cultivating are done with the less improved farm implements, and picking is by hand. Such a farm not only has low income-producing capacity but much of the cash crop income must be used for the purchase of both subsistence and production goods. In view of the seasonal nature of the one-crop system of farming, the cropper is practically unemployed for at least a third of the year. The possibility of supplementing the farm income with outside work, although considerable time is available in the summer and winter months, is extremely limited because of the cropper's location or the scarcity of jobs in those seasons.

The cropper farm is more or less inflexible in all of these respects,

[3] Woofter, T. J., and others, *Landlord and Tenant on the Cotton Plantation*. Works Progress Administration Research Monograph V, 1936.

partly because of the cropper's lack of managerial ability and partly because the landlord's interests are contrary in some respects to those of the cropper. The function of the cropper, from the landlord's point of view, is to produce the cash crop. The landlord may use the cropper arrangement, instead of employing wage hands, as a means of holding the labor supply on the farm, deferring the payment of wages until harvest, dividing the risk for the labor portion of the input, or for other reasons. On plantations the cropper system is more satisfactory, also, for the operation of certain service agencies such as the plantation store and gin. Feed crops required for plantation use can be produced and harvested more efficiently with improved machinery.

Owner-operators and independent tenants may, under favorable conditions from year to year, enlarge or adjust the farm business in proportion to their accumulations or credit resources as means of increasing income or improving efficiency. The cropper farm tends to be standardized in size in relation to the labor supply available for producing and harvesting the cotton crop and is not subject to adjustments to any appreciable extent outside of these limitations. As a result, as such, it affords neither a satisfactory basis for a livelihood nor a basis for realizing surplus earnings for advancement. It is not possible, even under favorable conditions, to build up gradually an accumulation of work stock or other livestock for use later as a tenant, because on the cropper farm there is no certain means of feeding or housing livestock. Because of these and other characteristics of the cropper system, and the not infrequent reversals in the fortune of farmers in general, permanent advancement from the cropper status to tenancy, it seems, is more difficult and more uncertain than advancement from tenancy to ownership.

The cropper's opportunity for making adjustments in other respects is equally inflexible. He lives, in many cases, in comparative isolation except for the other families in the same status. He has no means of conveyance, not even a team and wagon. Social pastimes, if any, are improvised by the members of the group concerned. Schools in cropper communities are notoriously inferior, and the time for attending schools, such as they are, is limited to a short period in the winter and a shorter period in the summer. Many have no textbooks, except in states which provide free textbooks, and few of either children or adults have access to other reading material.

The cropper system of farming, while affording an unsatisfactory basis for economic advancement of the workers, is in part

the result of the inferiority of the workers themselves. Many croppers are incapable of handling a larger or more complicated farm business or of utilizing other advantages, whether for the lack of experience, intellectual development, ambition, or industry and thrift. For the incapable or unwilling members of the group, the cropper status, despite the various limitations, has its advantages and is superior to more independent management. The problem, from the individual point of view, is for those who are more capable. For example, in plantation areas, there is the tendency for regulations on the part of the landlord, pertaining to size of farm, crops to be grown, credit allowances, housing, and other considerations, to apply uniformly to all families regardless of any difference in ability, reliability, or resources. This, combined with inflexibility in other respects, may in the course of time result in an attitude of dependency and ultimate thriftlessness. The extent to which the cropper system perpetuates itself in this manner is the most serious problem of all.

Some of the limitations of the cropper farm could be modified, in part at least, by the landlord. A small amount of extra wage labor at cotton chopping and cotton picking time could be used to increase greatly the size of the farm, and provision could be made for supplementing the farm income by the production of food crops. Provision could be made, also, for carrying forward minor accumulations in the form of livestock for future use as a tenant. This would require a more careful selection of personnel than is common and some discrimination in methods of dealing with the more worthy families. Such a policy would indeed be unusual in business management. The landlord would be waiving his own advantage in favor of the cropper, and working to get rid of his best labor, particularly if he preferred the cropper system to share tenancy. The point of view in this respect, in connection with the farming system, may be quite different from that of an industrial employer, in which case the employer may develop his men for holding higher positions in his own organization, whereas the farmer would be developing personnel for the purpose of losing his best workers. No general improvement of cropper farming of this kind is expected, although it might occur with tenancy.

This statement of the problems of the cropper is based more largely on conditions in plantation areas. The advantages and disadvantages vary greatly as between plantations and the small upland farm with only one cropper family. The small upland farm is less commercial, and there is more flexibility in the farming system and in the opportunity for economic and social adjust-

ments as occasion permits. While there are some elements in common, the cropper has more advantages in communities and on farms where his class represents the minority of the population.

The solution of the primary problem of the cropper, in respect to his system of farming, is not expected, excepting to the extent the system is eliminated, although some of the problems associated with the life of the cropper, such as health services, education, housing, and improvement in contractual relations, may experience some improvement. Certain trends, however, are significant in another respect. It is not uncommon for wage hands and croppers to go up the agricultural ladder, in periods of prosperity, because of better earnings and improved bargaining position, and to move down the ladder during periods of depression. The present tendency is, however, because of the rapid development in improved methods of production, particularly in the use of improved machinery including tractors for preparation of land and cultivation, for a large number of the croppers to revert to the wage status or to a more nominal status as a cropper, in the sense that, although working together as a group on the farm as a whole, each has a claim on a share of the production of a small acreage. The consequence of this movement, if it continues, in its effect on the economic position of the group involved can not be foretold, but the immediate effect is a lower rank, less security, and possibly reduced opportunity for advancement. While, for the employer, such changes favor efficiency in production and lower costs, for the laborer less consistent employment and lower incomes are likely to result. The immediate outlook, for tenants who revert to croppers, for croppers who revert to wage hands, and for wage hands who become unemployed, is distinctly unfavorable.

Discussion by A. G. Black

Bureau of Agricultural Economics

Dr. Taylor has presented ably a viewpoint on the problem of tenancy which is quite widely held—a viewpoint which regards it as of secondary consideration. He has said, in effect, that the problem of tenancy depends for its solution on solutions for a great many other problems—which he regards as more fundamental.

He has listed many of these fundamental or primary problems. They have a familiar ring. Most of them were with us a century and more ago; they are likely to be problems a century hence. If tenancy is to await solution or attempts at a solution until they have been solved, tenancy will be a subject of discussion on much the same plane as today when this group meets in 2037. If publicly sponsored experimentation with promising solutions—or approaches to a solution—is to await disposition of our fundamental problems, we will have committed ourselves as a society to

a static course in defiance of a traditional faith in the experimental technique.

I should be unwilling to subscribe to a fatalistic philosophy in the case of tenancy because we have not tried experimentation so far. I think it is safe to estimate that to date we have spent less on scientific research in the field of tenancy than we have on research work relating to apples, counting the efforts of all of our agricultural institutions.

The fundamental problems Dr. Taylor has listed—the standard problems of our times—may not be hopeless of solution. We have erected institutions in many cases specifically designed to cope with them. These institutions are the product of struggle in the face of assertions very similar in tone to those Dr. Taylor has relied upon in his prophecy of discouragement with respect to public efforts to cope with tenancy. Consider alone public institutions in the field of farm credit. The institutions so far erected may not have solved problems—but at least they have arrested the growth of some serious cancers affecting the agricultural community.

The serious proportions tenancy has assumed may be a temporary disorder. But when tenancy rises from 26 per cent in 1880 to 45 per cent in 1930, when annually 40,000 more tenants occupy American farms, many of them former land owners, it is time to raise some question regarding the sensitive balance of economic forces.

Tenancy is growing at an alarming rate. Perhaps 30 per cent tenancy, as Dr. Taylor has suggested, is reasonable, justified, and normal. But our situation is becoming increasingly abnormal and with tenants now operating land and buildings with a value in excess of eleven billion dollars we have reason to be aroused over the rise of unsatisfactory tenure conditions in American agriculture.

When a pest or disease breaks loose in American agriculture we are not content with relying upon the assumption that in time the crop or animal affected will develop an immunity. In the field of social and economic relationships we are not justified in trusting that immunities will be the answer—particularly when even cursory observation indicates widespread suffering.

I think that institutions, particularly those that are experimental and demonstrational in character, are justified in the case of tenancy. They are essential if we are to arrest tenancy growth even though the final solution is not in sight.

Dr. Taylor has said that if we have an adequate educational system for rural people, an occupational outlook service, a good credit system, a good system of land appraisal and certain other things tenancy will return to a point where it will be about normal. I would be tempted to agree with this as a hypothetical proposition. I, too, would agree that a sailor on a desert island, if he had a herd of goats, a garden, a stove and a pantry filled with canned goods, would be able to provide himself with an excellent meal. Defects in our educational system, our credit system, our monetary system are likely to be with us as long as we stay on this side of heaven.

Dr. Taylor points out, for instance, as one of the background problems to be solved provision for "an open market in which farmers may buy consumption goods at a fair price, uninfluenced by excessive tariffs, by monopolistic price fixing or by monopolistic wage fixing." If society awaits a solution of that hydra-headed problem to return tenancy to normal proportions it will have been patient indeed. Or shall we attempt

solutions without waiting for the one perfect solution that will solve all our troubles at once?

We cannot overlook, first of all, the rapidity of the rise of tenancy. This rise is a phenomenon which we cannot view with the same equanimity as we do other older, more general problems.

The government's program authorizes an expenditure of ten million dollars this fiscal year with increasing sums, if they are appropriated, in the years to come—25 million next year and 50 million the third year and years thereafter. But in view of the problem, its size and its pressing, growing character, such expenditures are amply justified alone on grounds of experimentation and education. The real danger lies in its limitations. The tenants who will be helped to become land owners will be few; but they will be doing more than failing and succeeding—we must be prepared for both results. They will be participants in an experiment and a demonstration.

I am certain that Dr. Taylor would be unwilling to turn back the clock to those days when experimentation and demonstration in crop and livestock production were left to individual farmers. Experiment stations have speeded up and systematized this research. Extension staffs have learned the value of the specific instance for demonstration purposes. And they have proved again and again the importance of the demonstration method in adult teaching.

It is not to be forgotten that the morale of countless tenants has been beaten so low that their aspiration to own land has virtually disappeared in many cases. They have seen older and stronger characters in their own neighborhood practise the discipline Dr. Taylor praises—with which we have no complaint—hard work, thrift and the cardinal virtues. But they have seen this discipline followed rigorously without advancing their neighbor an inch up the agricultural ladder. Under such conditions the old faith is sorely tried. There will be required demonstrations visible to the naked eye to develop the best in many tenants. If land ownership is a desirable goal—and Dr. Taylor and Congress appear to be agreed on that—then realistic demonstration will do more than anything else to rekindle ambition and unleash purposeful energy on the part of tenants.

It is equally a public function to do this as it is to conduct experiments in arresting orchard diseases at a public experiment station.

There will be instances where demonstration of tenant problem solutions will arise without public aid under everyday conditions. But they will be isolated, obscured, escaping the notice they deserve. Public effort will not discourage such private efforts; rather it will provide encouragement.

Dr. Taylor favors an adequate educational system for rural people and believes that the federal government should participate in providing it. Most of us agree on that. Rural educational opportunities are, of course, extremely limited. But the causal relationship between rural educational facilities and tenancy is not very close—at least it does not indicate that rural education alone spells the solution of tenancy. School facilities, the qualification of teachers, the number of days attended by the average pupil are relatively high in states like Iowa and Illinois, where tenancy is high and growing fast; these same measures place Mississippi, Alabama, and Virginia rather low. Tenancy is high in Mississippi and Alabama; yet it is relatively low in Virginia. I call attention to this not to demonstrate any lack of faith in education but as a basis of warning against too complacent a dependence on education.

In conclusion, I want to restate my conviction that the tenant problem deserves a direct approach. It justifies experimentation and demonstration through public action. Mistakes will be made but those mistakes measured on the balance sheets of research will be often as valuable as the triumphs. We are not justified in leaving the solution or partial solution of tenancy dependent entirely upon the solution of the standard problems of agriculture. To do that would be defeatism of the first order. In closing permit me to quote Dr. Taylor's statement of 17 years ago, quoted by Mr. Tolley in his address last evening "If we sit by calmly studying the phenomena in a cold scientific way and fail to aid those who are demanding action, we will deserve to be called sterile."

Discussion by T. Lynn Smith

Louisiana State University

Dr. Brannen is to be congratulated for his excellent and impartial treatment of the problems of the cotton cropper. He is entirely justified in centering his attention upon the plantation areas. Although he has indicated that croppers are to be found in most of the counties of the South, I am sure he would agree that they are concentrated in the lowlands or plantation sections. Probably he would be unwilling to go as far as I do in characterizing the problems of croppers as the social results of large-scale agriculture, but in any event, he has gone a long way in identifying the two.

I agree with Dr. Brannen that the cropper is a laborer paid on a share-of-the-crop basis. I do not concur in the proposition that the cropper may be considered a share tenant. The typical cropper works under an arrangement whereby the plantation operator agrees to give him a specified share of the crop from a designated acreage of ground, and the cropper agrees to perform the manual labor needed to produce and pick the crop. The landlord may allow him certain privileges on the plot of land assigned to him, i.e., he may be permitted to use some of it for a garden, to keep a pig, etc. But if any question arises concerning the use being made of the land by the cropper, it will be found that all the rights not specified in the agreement remain with the planter. The cropper has no rights in the land other than those specifically transferred to him by the landlord. For this reason there is no logical basis, whatsoever, for considering the cropper a tenant and a farm operator. A tenant is one who secures the right to use land for a specified period of time through the payment of rent to the owner. If the owner desires to retain certain rights in the land for the period of the contract, these must be specified in the lease. Then the tenant has the right to use the land subject to the terms of the lease. If no limitations are made in the contract, he has all the rights of the owner for the period of the lease. The tenant is strictly within his rights as long as he uses the land in ways not forbidden by the contract or by the law of the land. To summarize this point, the cropper has no rights in the land except those specifically transferred by the owner, while the tenant has all the rights in the land except those specifically withheld by the contract.

It also seems to me that even Dr. Brannen has not been able to avoid several of the pitfalls which have been set by a misleading and ambiguous Census terminology. For example, I believe he has failed to see the great gulf which separates two very distinct categories of share tenants. (1)

There is a group of share tenants which is composed of genuine farm operators. Lacking lands of their own they secure the right to the use of the land on which they carry out their agricultural operations (enterprises which they themselves plan and direct) through the payment of a share of the crop as rent. Share tenants of this type are to be found in all regions of the United States. In the South they are located principally in the upland sections where small farming has always been the rule, and in those lowland areas where the plantation system is in the last stages of disintegration. (2) In the South, however, there is another large group of agriculturists who also are referred to as share tenants. The AAA has dubbed them, along with the croppers, as "non-managing tenants." These people are merely laborers and not tenants at all. They do not pay rent for land which they themselves use in planning and operating farm businesses. Their activities, like those of croppers are planned and directed by the plantation operator. These so-called share tenants are found on many plantations, yet I am sure Dr. Brennan would agree that a well-managed plantation has only one ultimate authority, only one operator who plans and directs the entire plantation business. In many cases the only difference between these "share tenants" and farm laborers of the cropper type is that the former own a little livestock. Because of this they are entitled to a larger share of the crop. For general purposes this type of share tenant may be referred to as the cropper who owns a mule. He should not be confused with the real share tenant who is a farm operator.

Dr. Brannen has made a good case for inflexibility, and has indicated how this limits the activities of the cropper in a great many respects. I thoroughly agree with his analysis as far as it goes. I would indicate, however, that inflexibility is somewhat indicative of the security which is widely discussed nowadays. Furthermore, plantation operators in the South are likely to prove apt pupils in imitating their fellows in other parts of the country as soon as it is feasible to do so. When urbanization and mechanization of agriculture (both of which are now proceeding at a very rapid pace in the South) have gone on for a little longer, these problems of inflexibility may be overcome. It may well be that in the future, a large part of the South's agricultural laborers will reside in cities and towns, as do those of California at present. During certain seasons they will work for a daily wage in the rural districts. At other times they may be the recipients of private or public relief in the towns and cities. One wonders if their lot may not then be as miserable as is that of their brethren today in the slums of New York, Chicago, and other large cities.

However, there are some ways in which the croppers' behavior is not so hedged about. For example, the Negro croppers' marital ties are very flexible. The marriage relationship is frequently entered into for the duration of a single crop season. Because of this, such mating is not uncommonly referred to as "cropping." Furthermore, marital relations are by no means stabilized even for the duration of the crop season. Now this lack of stability in the family relationship is intimately associated with many other social and economic phenomena. (Only one with unmistakable economic implications will be mentioned.) During the life of the Bankhead Bill, many plantation operators reduced the number of croppers on their land and did it without violating their AAA contracts. This is how it was often done: If a cropper's marital or extra-marital relations made it imperative for him to leave the plantation, he was not replaced by another.

INDIRECT RESTRICTIONS TO INTERNAL TRADE

Frederick V. Waugh
Bureau of Agricultural Economics

Five years ago Professor Leland Spencer presented to this association a paper on the "Practice and Theory of Market Exclusion Within the United States." His paper dealt primarily with the inspection of dairy products and showed that the laws and ordinances which were in effect had two different purposes and two correspondingly different results. They assured the consumer of reasonably good milk and cream but they also tended to restrict supplies of milk and cream, to limit the area of the milk shed; and in general to give nearby producers certain advantages over distant producers. The paper was followed by discussions by Professor Garver and by Professor Hobson indicating that there were many other kinds of legal and extra-legal regulations which tended to restrict internal trade and to protect certain groups of producers from competition with other groups.

The three papers agreed that there was an increasing number and variety of such restrictions but appeared to disagree in their conclusions as to their economic effects. Professor Spencer concluded his paper with the sentence,

> On the whole, the economic and other advantages at the acts of partial or complete market exclusion which are known to the writer seem to outweigh their disadvantages, even when considered from a national rather than a local point of view.

Professor Hobson's conclusion is, "On the whole, it can be said that these trade barriers restrict advantages accruing from a division of labor, not only as it pertains to the specialization of individuals and organizations, but more particularly those benefits resulting from natural advantages inherent in location and areas."

We need to put a few good agricultural marketing economists to work studying this problem. Their job would be (1) to find out the extent and kinds of such regulation and recent trends, (2) to analyze their economic effects on various groups of producers and consumers and on agriculture as a whole, and (3) on the basis of such an analysis to suggest general policies which in the long run will promote general welfare. I wish I were in a position to present today the findings of such a study, but I am not. The Bureau of Agricultural Economics has undertaken a study along these lines this year and I am hoping we can publish at least a preliminary report in 1938. All this present paper can do is to mention some of

the most important types of legal regulations which tend to restrict internal trade, to discuss some of the principles which might be applied by economists in testing the wisdom of such regulations, and to point out some issues which need to be classified.

Historical Policies of the Federal and State Government

Everyone knows that the Constitution of the United States gives the Federal Government authority to regulate interstate commerce and prohibits the individual states from placing taxes or duties on imports from or exports to other states. However, as Mr. Justice Miller said fifty years ago on the 100th anniversary of the Constitution

> . . . at no time since the formation of the Union has there been a period when there were not to be found in the statute books of some of the States, acts passed in violation of this provision of the Constitution, imposing taxes and other burdens upon the free intercourse of commodities, discriminating against the productions of other States, and attempting to establish regulations of commerce which the Constitution says shall only be done by the Congress of the United States.

During the fifty years since Mr. Justice Miller spoke these words new kinds of regulations have been developed—particularly on agricultural products. As agricultural economists our concern is not so much with the legal question whether or not such regulations are constitutional as it is with finding out the kinds of regulation which are developing and trying as dispassionately and objectively as we can to understand their economic effects and to arrive at sound public policies. In doing this it must be apparent that individual states are using their police powers and their taxation powers in ways which do regulate interstate commerce. In some cases this may be desirable or even unavoidable. In some other cases these powers may have been used to grant special privileges to a small group of producers to the disadvantage both of large groups of other producers and of the consuming public. As agricultural economists we should try in so far as we can, to arrive at some set of principles by which we can judge whether a given kind of regulation is desirable or undesirable.

In spite of many exceptions I believe we can say that the historic policies of both the Federal and State Governments have been to allow and to promote free trade within the United States. Most economists are firmly convinced that internal free trade is desirable. By a policy of free trade the economist does not mean unregulated trade. In fact, a complete lack of regulation would certainly not promote free trade. An active policy of promoting free trade requires two things from governments. The first is to

allow all buyers and sellers free access to all markets, with no attempt to hinder any group of buyers or sellers from trading in any market by arbitrary discrimination in charges or in other regulations. The second is to provide assistance and protection to buyers and sellers by preventing violence and dishonest practices, by prohibiting the sale of injurious commodities, by providing unbiased information on supplies, demand conditions and prices in various parts of the country, by encouraging or requiring the use of standard containers and standard methods of grading and inspection, and by other regulations and services.

In this country both the Federal and the State Governments have gone far in assisting and even promoting free trade by providing buyers and sellers with protection and assistance. The comparatively free trade which has been made possible and encouraged by these policies has been an important factor in the prosperity of the country. In the case of agriculture particularly, it has made possible specialization by areas and by individual farmers according to the principle of comparative advantage.

The issue, as I see it, is not whether trade should be regulated. It is how it should be regulated in order to be of greatest service to the general public, and in order that any benefits or injuries to particular growers or to particular producing areas be only those which are necessary to promote the general welfare. In many cases such regulations necessarily benefit some groups of producers and injure others. There is nothing wrong in this if the benefits and injuries are necessary to accomplish desirable public purposes. Yet, there are no doubt many existing regulations which though based on sound public objectives are so worded and so administered as to grant arbitrary favors to some producers and to injure others who are just as able and willing to serve the public.

Discriminatory Regulations

Let us consider very briefly a few of the main types of legislation affecting interstate commerce giving particular attention to the possibilities of misusing them to discriminate arbitrarily among different groups of producers.

Milk inspection is one of the most interesting types. It is commonly recognized that the consumer needs protection against unsanitary milk. Most authorities agree that this requires not only the inspection of samples of milk after it reaches the city but also inspection of the farms on which the milk is produced. Therefore many cities and towns have refused to allow any milk to be sold except from farms which have passed an inspection by some of-

ficial of that particular city or town. This raises two important questions. First, do the inspection laws and regulations require those things and only those things which are necessary to protect public health? Second, are the laws so administered that some dairy farmers who want inspection can't get it? In many cases the milk inspection policies we have had can be criticized on both grounds. For example, one state has required that all milk be bottled within 100 miles of the state borders. In other cases the enforcement officers apparently have been reluctant to inspect dairy farms which happened to be located outside the boundary of the recognized milk shed.

In fact, it is quite evident from the debates in the state legislatures and in speeches and reports of state commissioners of agriculture that milk inspection laws are intended in many cases not only to protect the consumer against disease, but to protect the local dairyman against the competition of most distant producers.

Other compulsory inspection is also of some interest. There have been attempts to protect other local producers by sanitary inspection. One city passed an ordinance a few years ago requiring bakery inspection for all bread sold in the city. It proceeded to inspect only nearby bakeries and to refuse inspection to certain bakeries which happened to be outside the state but which had been selling bread in the city.

Legislation has been proposed in at least two states requiring inspection of certain imported products including cement and shoes. An inspection fee also would be required. This would appear to be, for all practical purposes, an import duty and would be an indirect regulation of foreign commerce.

Compulsory marking of one kind and another is of growing importance. This may serve a very useful purpose if the marketing gives the trade and the consumer useful information about the products they buy and sell. However, it may easily result in bad discrimination.

The worst form of compulsory marking probably is the requirement that all products grown outside a given state be marked in some derogatory way regardless of their quality. Several states have passed egg laws requiring that all eggs brought in from outside the state borders be marked by some such term as "shipped eggs" and allowing only local eggs to be marked "fresh." One state recently put red dye in milk brought in from outside.

A much more defensible type of legislation is that which re-

quires foods to be marked according to grade. Even here, however, there is very real danger of arbitrary discrimination. The state can set up any grade names and any grade requirements it chooses and may define the top grades in such a way that it can not be met by distant producers on account of purely technical reasons which have little, if anything, to do with quality. Also the requirements may be conflicting in different states. For example, one state requires that all No. 2 potatoes shipped out of the state must be shipped in plain, unmarked sacks. If the shipper complies with this law he runs counter to a Federal Act requiring a statement of volume, weight, or numerical count. Moreover, if the potatoes are sold in certain states the sack must show the name and address of the grower or packer.

In several of these laws, too, there is an apparent attempt to discriminate against the out-of-state grower. One state has recently passed a law requiring that all fruits and vegetables *brought into the state* be marked as to grade but not requiring local growers to grade or to mark their products in any way.

Permits or licenses are required for many kinds of businesses by many cities and towns. Farmers or dealers are not allowed to sell farm products in some cities without such permits or licenses. It is often difficult and expensive for a distant trucker to sell occasionally in such a city. The tendency is in such cases to give a competitive advantage to the "regular" dealers and farmers and to discourage "outsiders" from competing with them.

Municipal farmers' markets often refuse distant farmers and dealers permission to sell there. This ordinarily does not prevent competition from "outsiders" but simply forces them to go around the regular market channels. It ordinarily promotes price cutting and tends to disorganize the market generally.

Taxes may be used to discourage the consumption of foods which compete with locally grown foods. State taxes on oleomargarine serve as a good illustration. It may or may not be good public policy for the United States to tax oleomargarine, but when a dairy state taxes oleomargarine it is placing an indirect duty on a product made partly from cottonseed grown in other states and partly from oils imported from foreign countries. Some state taxes on oleomargarine have been high enough to eliminate practically all sale of that food, and thus have almost amounted to an embargo on interstate and foreign commerce.

Motor truck licenses and taxes and many other forms of taxes doubtless have interfered at times with free trade.

Conclusion

I shall not take the time to give further examples of indirect regulation of interstate trade. We do not yet have anything approaching a complete catalog of such regulations—to say nothing of studies showing their economic results. However, it is clear enough that there are many different types of regulations in this field. They are growing in number and in complexity, and I believe warrant very serious study.

It is also clear that most of these regulations serve useful purposes. We need legislation to protect public health, to give consumers information on the quality of foods, to obtain revenue, and so on. On the whole, I suppose Dr. Spencer was correct that, considering all the legislation in this general field, it has done more good than harm. However, I believe it is clear that much of this legislation, and many of the administrative policies which have been followed in carrying it out, have resulted in arbitrary and harmful discrimination between groups of producers. It is not enough that our regulation of interstate trade does more harm than good. Why should we allow it to harm anyone if we can prevent it?

Such arbitrary discriminations as exist are based largely on the false notion that the Massachusetts milk producer has more of a right to the Boston market than the Vermont producer or the Ohio producer; or that the Maryland cantaloupe grower has more of a right to the Baltimore market than the North Carolina or Virginia growers. The local growers, near the big markets, often resent large receipts of farm products from other areas either during the local growing season or immediately preceding it. Large receipts from other areas may bring the price down for all producers,—both those distant from market and those near the market. Local growers often resent especially the receipt of large supplies of low grade or ungraded products from distant areas which sometimes may result in price cutting which may spoil the market for the better grades.

The economist as well as the lawyer must realize that the local farmer, near the big market, has no more right in that market than has the producer whose farm happens to be 1,000 or 3,000 miles away. He has no right to be protected from the competition of the distant producer as long as that competition is fair. Moreover, he has no right to protection from competition with products which are of a lower grade than his, unless the competing products are so low in quality as to be unfit for consumption, or

unless they are deceptively marked so as to mislead the consumer into thinking the quality is good. We probably will always have a good deal of variation in the quality of farm products. It would be a bad economic policy, both from the standpoint of the producer and from the standpoint of the consumer, to sell only the best qualities or the highest grades produced. As long as lower grades are produced and sold any producer or any producing area has an equal right to sell them in any market.

It has been necessary to develop many kinds of regulation to trade and there are likely to be more in the future. These regulations are almost certain to affect different groups of producers in different ways. When these regulations do discriminate between different producer groups we should be very careful to see that the discrimination is fair and that it promotes the general welfare. This is not easy to define and should be the result of careful research rather than of a priori reasoning. However, an example or two might be appropriate here. Any grade definitions are likely to benefit those farmers whose products meet the requirements of the top grades and they may injure those farmers whose products fall into the lowest grade definitions. The discrimination here will be fair and reasonable if the grade requirements represent true definitions of differences in the relative values of the product. Freight rates and various marketing charges vary among different groups of farmers. These variations should represent real differences in the cost of the services required.

How can we regulate trade in such a way as to have as little arbitrary discrimination as possible among different groups of producers? In my personal opinion the only practical way is for the Federal Government to assume a greater share of the responsibility for many of these regulations. This is particularly true of regulations dealing with compulsory inspection, with grades, and with marking and packing requirements. So far, regulations on these subjects probably have done more good than harm—but they have done some harm, and if all existing regulations on these subjects were strictly enforced I believe they would do serious harm. They could be so written and so administered to do much more good and much less harm if the goal were in all cases to promote free trade among the states rather than to hinder it.

MARKET PRORATES AS RESTRICTIONS ON INTERNAL TRADE[1]

H. E. ERDMAN
UNIVERSITY OF CALIFORNIA

My subject involves the view that prorate laws, namely, laws which permit allocation of the available markets to the members of a producer group, are trade barriers which are likely to have effects other than those more obvious effects for which they are imposed. I am thinking not only of the type of law represented by the California Prorate Act, but of the proration features of the United States Marketing Agreements Act of 1937 as well. I am not aware that other states than California have as yet enacted such legislation, but if one law succeeds, others will come.

The term "trade barriers" probably brings to the minds of most Americans some such older barriers as quarantines or tariffs. Quarantines have long been used for such laudable purposes as that of preventing the spread of insect pests or diseases. They have doubtless been retained in some cases after the danger was past, to afford protection against outside supplies. At any rate, producers have commonly realized that such quarantines were offering such economic protection when in force. Tariffs have become familiar after a century of discussion, first as developers of infant industries, later as alleged protectors of the American standard of living for labor employed by established industries, etc. Almost always such discussion has involved the thought of protecting "us" against "them."

In the case of prorate schemes, the aim is to protect "us" in a particular producer group against "ourselves"; that is, to promote action by "ourselves" similar to that which "we" would take if "we" were "I." Obviously, that would make "us" a monopolist. The use of any monopoly power by a group of competitors in a given area is quite certain to lead to trade adjustments between regions.

The older protectionist schemes were designed to keep goods out of the protector's market lying within their own borders. The newer forms under the various surplus control schemes seek to apply the same sort of protection to the individuals in the producing group as regards their own markets, either within their own borders, or outside. Thus, the California lemon growers have long been interested in tariff laws designed to protect their domestic market

[1] Paper No. 67. The Giannini Foundation of Agricultural Economics. This paper was read at the Twenty-eighth annual meeting of the American Farm Economics Association. Atlantic City, N.J. December, 1937.

against foreign lemons. The cooperative prorate scheme set up in 1924 and later the lemon prorate plan set up under California law were designed to protect the same producers against their own market-spoiling activities, whether in California, New York or New Orleans.

In so far as actions taken under these laws exert an influence which alters the flow of trade as to rate or direction, they set in motion economic forces which sooner or later lead to other changes. We shall examine particularly some of the long-time effects likely to follow the operations of prorate laws. Some of these effects result largely from the reactions of producers, whether of the particular or of a competing commodity, and whether within or without the sphere of action of the control. Some effects arise out of consumer's reactions. All have a bearing on the general welfare.

Genesis of Prorate Laws

The idea of a surplus production of specialty crops is old in California. It was in 1884 that a prominent speaker pointed out that something was wrong:[1a]

> The question of supply and demand will soon be an interesting one to the fruit grower. Diligence and labor may keep the orchards healthy and productive, but then to the problem of saving the vast product, must be added the greater problem . . . of profitable sale and distribution.
>
> Fruit is surely . . . destined to be cheap and in oversupply; but if our finances suffer, we may console ourselves with the philosophical reflection that if our pockets are lighter humanity wins.

The history of cooperative efforts in California[2] beginning with the California Fruit Union of the middle 80's is replete with attempts to get a sufficient sign-up to one plan or another to make market control possible, either through stronger cooperatives or through what came to be known as "clearing houses," namely, organizations combining cooperative and proprietary firms. In the middle 20's there was some discussion of "compulsory cooperation." It was labeled "unconstitutional" and "un-American."

The sort of situation that finally put growers in the mood to favor the passage of some sort of control legislation was that surrounding the sale of the 1928 crop of peaches.[3] By a sort of gentlemen's agreement between canners the pack was to be restricted

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[1a] Kimball, Edwin, Report of Fourth California Fruit Growers' Convention. Sacramento, September, 1884, pp. 4–7.

[2] For a discussion of the movement see Kraemer, Erich and H. E. Erdman, "History of Cooperation in the Marketing of California Fresh Deciduous Fruits," California Agr. Exp. Sta. Bul., 557, September, 1933.

[3] For an account of a final conference concerning this "deal," see *San Francisco Chronicle*, October 4, 1928, pp. 1 and 4. For the canners' side of the story, see *Pacific Rural Press*, October 13, 1928, p. 377. The figures above quoted are only approximately those later accepted as official. See Wellman, H. R., "Supply, Demand, and Prices of California Peaches," California Agr. Exp. Sta. Bul., 547: 60 and 62, 1932.

to 13 million cases, which would have required some 282,000 tons of fruit. For this they were to pay $25.00 a ton, or a total of about $7,000,000. Instead, the canners packed over 14,500,000 cases, requiring about 320,000 tons of fruit. For this they paid $20.00 a ton, or a total of around $6,400,000—about $600,000 less than they would have paid for the smaller quantity. In other words, as the growers viewed it, they not only expended the amounts necessary to pick and haul the additional 38,000 tons of fruit, but gave it to the canners free and with each ton a cash donation of $16.

The development of prorate laws is an interesting example of a tendency for activities once accomplished by voluntary cooperation to become recognized as activities which the whole body should share and hence support. Road and bridge building, to cite but one example, was in many sections once a matter for voluntary cooperation in the community.[4] Today it has become a state function. Marketing was once wholly a matter for the individual producer. Then certain special groups found voluntary cooperative effort useful. Repeatedly, however, such cooperating groups have wanted to undertake jobs beyond their ability so long as nonadherents shared all the benefits and bore none of the costs. "Carrying the umbrella for the outsider" came to be a common expression among cooperators selling specialty crops. Two of these difficult jobs were market expansion and surplus control. Market expansion proved to be a feasible job for a cooperative. But handling a surplus problem was another matter. As the need for surplus control in special situations come to be more generally recognized, a legal attitude developed to meet it. The result was the California Prorate Act of 1933.

The origin and nature of the Act was outlined in an earlier paper.[5] The immediate spur to its formulation and passage in the spring of 1933 was the failure of the voluntary prorate plan undertaken by a group of Tokay grape shippers in the fall of 1932. The cooperating shippers were handling 85 per cent of the shipments when the plan was undertaken. The plan was given up when, within a few weeks, the outside 15 per cent had expanded to nearly 50 per cent of shipments.

The marketing agreements features of the Agricultural Adjustment Act of 1933 were included in that Act largely upon the insistence of representatives of the California Farm Bureau Federa-

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[4] Since writing the above the writer ran across the same idea in Hibbard, B. H., "The Advantages of Preserving Individual Initiative among Farmers," *American Cooperation*, 1934, p. 119, and two sources quoted by Paul H. Douglas in, "Is Cooperation a Desirable Middle Way?," American Cooperation, 1937, p. 119.

[5] JOURNAL OF FARM ECONOMICS, 16(4): 624–636, October, 1934.

tion,[6] doubtless with the approval of other groups. All were familiar with the above and similar experiences.

Producer Aspects of Prorate Control

Thus far prorate schemes have aimed mainly at prorating the available total markets and have not particularly attacked the problems of inter-market adjustment.[7] Although space forbids discussion of procedures, it may be well to point out here that in the past few years at least six distinct types of procedures have been developed for curtailing totals under the various market proration plans,[8] along with innumerable detailed plans for making the allocations:

1. Leave part of the crop in the field.
2. Destroy a portion of the crop after it has been removed from the field.
3. Retard the flow of the crop at peak periods.
4. Divert a portion of the crop into less profitable markets, such as (a) exports, (b) undeveloped markets, (c) poor relief.
5. Divert part of the product to secondary uses.
6. Carry part of the crop over into the succeeding year.

It is not the purpose here to discuss the various procedures, but merely to point out that long-time results may differ somewhat according to the way given controls are administered. Thus if a decision is deferred until just before the crop is ready to harvest, or if all must actually be harvested though not all is to be sold, all the costs of production up to that point are applied to the entire crop. If this materially raises the costs per unit for the portion sold by the producers in the control scheme, those in areas outside are given just so much advantage.

Any farming operation involves the familiar combination of the factors of production. Whenever farmers face a change that makes some other combination than the present one promise to pay better, some of them will begin to "adjust." The main sorts of changes that lead producers to make adjustments are: (1) changes in prices received, (2) changes in costs, and (3) changes in prices of alternative crops. The adjustment may be rapid or slow and may be good or bad, but a start is made as soon as such a change is present or in the offing.

[6] Nourse, E. G., *Marketing Agreements Under the AAA*, p. 15, 1935.

[7] Thus far the assumption has apparently been that equal pressure on all markets was the right aim. See Stokdyk, E. A., "Marketing Tokay Grapes," California Agr. Exp. Sta. Bul., 558. "Sales Methods and Policies of the Calavo Growers' Exchange," California Agr. Exp. Sta. Bul., 539: 22–29. This view has recently been challenged. See Waugh, F. V. et al, "Controlled Distribution of a Crop Among Independent Markets," *Quarterly Jour. of Econ.*, November, 1936, pp. 6–7.

[8] See Nourse, E. G., *Marketing Agreements under the AAA*," pp. 60–63 and 322. For a discussion of certain proration problems see the writer's article, "Supply Adjustments in Fruit and Vegetable Marketing Agreements" in *National Marketing Review*, 1(4): 332–337, spring, 1936; also Stokdyk, E. A., "How Shall We Prorate?" an address before the California Farm Bureau Federation, November 14, 1934.

One of the very significant aspects of the tendency to adjust farm operations under surplus control schemes for farm products is the conflict in point of view of the individual producer toward his particular problem. On the one hand, he is thinking by force of long-established habit as an "atomistic" competitive producer. On the other hand, there is his point of view as a member of a newly established monopolistic group concerned with the market for his product as an atomistic part of a total supply.

For the individual producer of almost any farm product, his own supply is so insignificant as compared with the total that for him the demand curve is a horizontal line, and he customarily but unconsciously looks upon it as such. In other words, he knows that no variations in the amount he can produce for sale will affect the price appreciably. The most likely objective for the individual producer is, therefore, to carry production to the point where, in the economists' language, marginal costs are just covered.

On the other hand, for the aggregate of farmers in a given industry, the demand curve is not only the typically sloping curve but, calculated at the farm, it often represents an inelastic demand, even though at the consumer's end the demand may be distinctly elastic; in fact, the probability is that for a substantial proportion of the farm crops produced for immediate consumption at a distance, such as California or southern peaches produced for eastern consumption, or products for manufacture into consumable goods such as canned peaches, apricots, or pears, the derived demand at the farm is distinctly inelastic.[9]

Canned peaches perhaps offer an extreme example, though many other western or southern crops would do as well. Here the value of the raw fruit at the farm is always a small part of the final value.

This sort of situation is pictured in figure 1, perhaps oversimplified in that the "curves" are drawn as straight lines. Line 3, representing prices obtained by canners f.o.b. the cannery, is a statistically determined curve.[10] The others are "derived" curves, and in that sense "arbitrary." Thus line 4, representing prices to producers, is below line 3 by the absolute amount of $2.12 per case, representing the principal items of cost to the canners.[11] Line 2 is placed above line 3 by 77 cents, the approximate cost of transportation to the East, and hence supposedly represents the price paid by wholesalers.

[9] This tends to be true because so many items of cost tend at any time to be on a unit basis.
[10] See Wellman, H. R., "Statistical Analysis of the Annual Average F.O.B. Prices of Canned Clingstone Peaches, 1924–25 to 1936–37," Giannini Foundation of Agricultural Economics, Mimeographed Report No. 59, June, 1937.
[11] Wellman, H. R., "Estimated Average Costs of Packing and Selling Canned Clingstone Peaches in 1932," Giannini Foundation of Agricultural Economics, Mimeographed Report No. 14, July, 1932.

Finally, line 1, representing prices to consumers, was established by assuming that the combined wholesaler-retailer margin would be 30 per cent of retail price at seven million sales volume and 35 per cent at thirteen million case sales volume.

As figure 1 is drawn, the elasticity of the demand at the con-

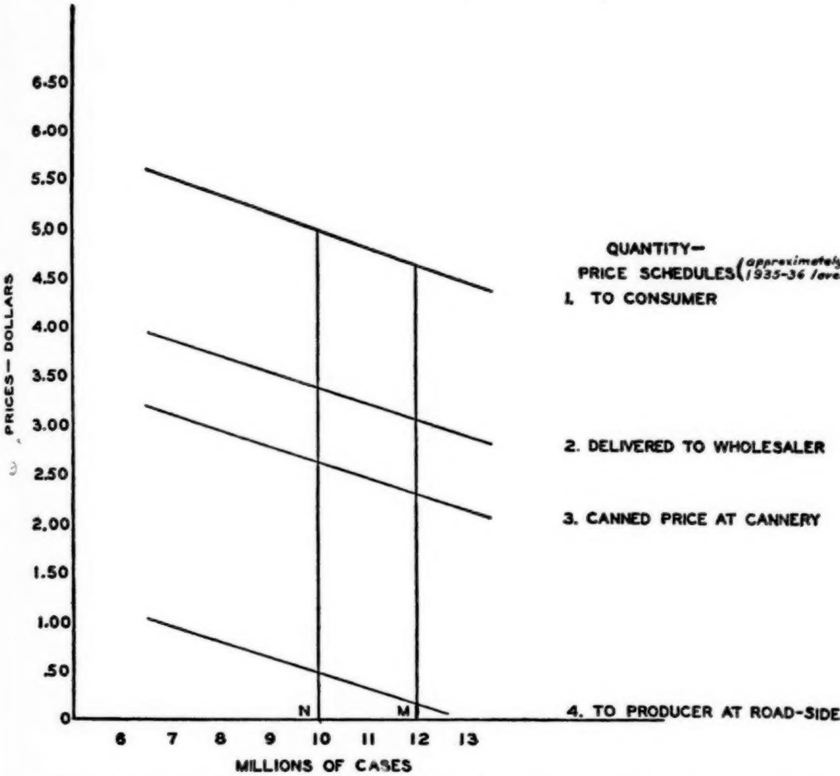

Fig. 1. Hypothetical Demand Curves for Clingstone Peaches. Curve 1. Margin between cost to wholesaler and price to consumer calculated on assumption it is 30 per cent of retail price at 7 million cases and 35 per cent of same at 13 million cases. Curve 2. Selling price established on basis that margin between canners' selling price and the price delivered to wholesalers is $0.77 per case, representing average freight rates on established gross weight of 55 pounds per case and a freight rate of $1.40. Curve 3. A statistically determined curve at level of approximately 1935 and 1936 price. For source see footnote 10. Curve 4. Derived from line 3 by uniform deduction of $2.12 per case to cover canners' costs including buying operations.

sumer's end is something like 3, at the producer's end something like ⅓, each at the ten million volume point. As here pictured, the total value for various volumes is greatest at the producer's level for the smallest volume, and at the consumer's level at the

greatest volume. The oversimplification should not matter for our present purpose.

Suppose the supply in figure 1 is furnished by 1,500 producers, each operating his individual farm from the atomistic competitor's point of view above described. Suppose, then, that each of these 1,500 producers realizes that he has been placed in a monopoly position as a result of the application of a prorate plan. Once this happens, the individual point of view supposedly disappears as the group arranges to adjust marketable supplies at a point that will maximize producers' gross returns.

However, at the higher price each individual feels like and seeks to act as an individual under the urge to increase supplies on his own farm, if the effective price (that is, the weighted average returns for all quantities sold in various ways or dumped)[12] is above marginal costs. If the price is so low, as it was in 1932, that only direct costs are covered, there will obviously be no increase in production.

Within the sphere of the control scheme each individual is torn between using as a guide the familiar market price and the newer effective price or average returns concept. The difference between the market price under a control scheme and the effective price will be wider, the greater the degree of curtailment. Outsiders have only market price to watch, and that is what they get. This widening differential is the pressure that has broken many a control scheme. To outsiders such schemes look like and are protective in nature. Hence they should aid in the development of competition.

It is always difficult for producer groups to get their long range sights adjusted. Discussions of "long run" adjustments have no appeal to producers—it is conditions in the "short run" that will make or break them. At any given time, some among them always see the spectre of high costs and low prices, even of the sheriff just around the corner. When prices are high for a time, costs of many sorts are allowed to climb, lands are bought and equipped at high costs, and unskilled entrepreneurs soon enter.

The result is that cost studies are quite as likely to show some costs above the prevailing prices during a high price period as during a low price period, assuming both periods have obtained long enough for new enterprises to have sprung up. Hence producers repeatedly ask for prices at which they themselves admit production will increase. Sunken costs are very real to them.

It should be pointed out that a forward-looking supply curve is

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[12] A graphic presentation of this idea was attempted in the writer's article on "Who Gets the Benefit of Improvement in Agriculture?" JOURNAL OF FARM ECONOMICS, 11 (1): 29–31, January, 1929.

quite a different curve from a backward-looking one; namely, the supply curve is not reversible.[13] The backward curve is much the steeper, because so much of sunken costs can only slowly be withdrawn. Any industry should gradually and naturally shrink if expansion has ceased and replacements are not made. That is, trees are always dying, buildings and equipment are always wearing out, etc. A well-operated prorate scheme might therefore lessen the pain of readjustment necessary because of misjudgment or of changes in economic conditions and lead to gradual amelioration by natural processes, that is, provided the controls are "monopolists conscious of their rivals' reactions,"[14] even though the rivals are in another state or another country.

Moreover, any data concerning distant producers count little in forming local judgment until the distant supplies begin to appear on the markets in threatening quantities. Hence potential supplies at a distance seldom get adequate consideration. Thus, Brazilian farmers were content to talk of high costs as justification for valorization while Central America planted coffee. British rubber producers talked of costs while Dutch and British trees were coming into bearing. Southern California walnut growers now talk of high costs while northern California and Oregon producers are planting. Lemon producers of one section complain that costs are high and that they therefore need protection, whereas at the supported prices growers in other sections are planting. Recently several California proration committees have been surprised at the large volume of produce which relatively moderate market support attracted from ordinarily non-competitive areas within the state or from adjoining states. Of course on intra-state business the matter is easily handled by enlarging the prorate zone. Not so, when the "outside area" lies across a state or national boundary.

How rapidly a change in the rate or volume of flow of goods from a producing section will affect production in other regions will depend upon a variety of factors.[14a] Producers may at times be hesitant about trying something new. The tempo of change has been greatly accelerated in recent years by the development of our outlook and extension services. Even here there must be time for the accumulation of some experience (or statistics). With annual crops the time will be short, with tree crops long. In the latter case the resulting "hangover" of unwise development may also last long.

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[13] See Benedict, M. R., "The Opportunity Cost Basis of the Substitution Method in Farm Management," JOURNAL OF FARM ECONOMICS, 14 (3): 385–86, July, 1932.

[14] See Machlup, Fritz, *American Economic Review*, September, 1937, p. 447.

[14a] See Johnson, Sherman, "Bases for Advantage or Disadvantage," JOURNAL OF FARM ECONOMICS, (1): 226, February, 1937.

The point is sometimes made that a stabilized industry, will attract labor and capital even at low returns. Too few examples are at hand. It is well known that a safe bond attracts more buyers than an unsafe one bearing the same rate. I have been inclined to expect the same thing from crop controls which tend to stabilize returns but not to restrict production. The production of asparagus under the marketing agreement for California canning asparagus may be a case in point. Output has been curtailed somewhat and hence price has been supported. Returns are said not to have been at all exorbitant, but production has been increasing by leaps and bounds since the control was established in the spring of 1934. In this case the market stabilization appears not only to have brought in new acreage but to have induced additional canners to add asparagus to their "lines" both in California and in other states. Moreover, old canners who have facilities and outlets available have been forced to bid up prices to levels quite profitable to growers but not to themselves.

Of course, the increased desirability of adding canned asparagus to a "line" of canned goods by scattered canners may have been a result of technical factors such as the development of canning technique which makes it possible to can the green asparagus available in other areas.[15] At any rate, when the control plan was inaugurated in 1934 California canners were packing 98 per cent of the United States pack of canned asparagus. Canners in other states have gradually crowded in until in the 1937 season California canned only about 74 per cent. Supported price may not have been the only reason for the developments in outside areas—but the point bears watching.

A serious aspect of any curtailment scheme is the tendency of those who seek to gain an advantage through it to be less critical of similar controls on the part of other groups. Hence such controls may develop into a creeping paralysis on industry. Any group may favor curtailment by other groups whose political aid the first may desire, provided they are not on the supply list for the former. The situation may not be unlike that in the case of the tariff, where, for example, American farmers have actually accepted a generally ineffective tariff on wheat in exchange for generally effective tariffs on products they must buy. In view of recent price maintenance legislation the tendency seems already to be in the direction of universal monopoly and universal scarcity, rather than in the direction of increased abundance.

[15] California asparagus has largely been "white," that is, asparagus cut underneath the surface of the ground.

Consumers' Reactions

Consumers are always seeking to make the dollar go as far as possible in satisfying wants. In the process they are constantly comparing values at the margins and as constantly making adjustments. When they find it easy to adjust—when wants are not urgent or when substitutes are numerous—we say demand is elastic. When they find it difficult—we say demand is inelastic.

But "easy" or "difficult" are relative terms. They are related largely to present habits of consumption and production. The variously designated statistical demand curves are based on the recent experiences with "other things equal." If oranges, table grapes, butter, or potatoes are temporarily high, it is quite likely that a degree of inertia in consumers' habits retards the full shift that will take place until after consumers have had time to experiment and observe. Moreover, producers, allowed time to meet new demands, will find those "breaking points" in demand schedules where shifts will tend to take place from other products to their own.

The statement is often made in support of various control schemes that a stabilized market leads to increased consumption. Most practical market men agree that it does. Writers of leading marketing textbooks concur.[16] They argue that with a stabilized market handlers are not afraid to stock up, whereas even a rumor of future price concessions stops buying. Having stocked up, they will push a product, particularly if it has a merchandising program back of it.

Applied to any single commodity, the argument that the trade will stock up more freely seems to have merit. Furthermore it should doubtless ultimately sell at somewhat narrower margins with a reasonable assurance that prices are stable. The results of dealers' reactions need careful examination relative to this point in those numerous instances in which producers and consumers are economically far apart. Here one should consider the producer's supply curve along with the consumer's demand curve, bearing in mind that there is often a relatively complicated price adjusting process between them. This separation is illustrated in figure 2 where solid lines are used to indicate the actual and dotted lines the derived curves.

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[16] Clark, F. E., and L. D. H. Weld, *Marketing Agricultural Products*, pp. 560–61.
Converse, Paul, *Elements of Marketing*, p. 538.
McFadden, A. J., "Stabilization Features Under the California Agricultural Prorate Law," California State Dept. Agr. Monthly Bulletin, March, 1937, p. 86.
Wellman, H. R., "Regulating Shipments of California Oranges," California Agr. Exp. Sta. Circ., 338: 17, January, 1936.
Taussig, F. W., "Is Market Price Determinate?," *Quarterly Journal of Economics*, 35 (3): 394–411, 1921.
Teague, C. C., "The New Deal and the Cooperative Movement," *American Cooperation*, 1934, p. 96.

The contrary argument advanced by Chamberlain[17] that sales will be greater under fluctuating prices seems to the writer to have some validity for cases in which producers and consumers are close together.

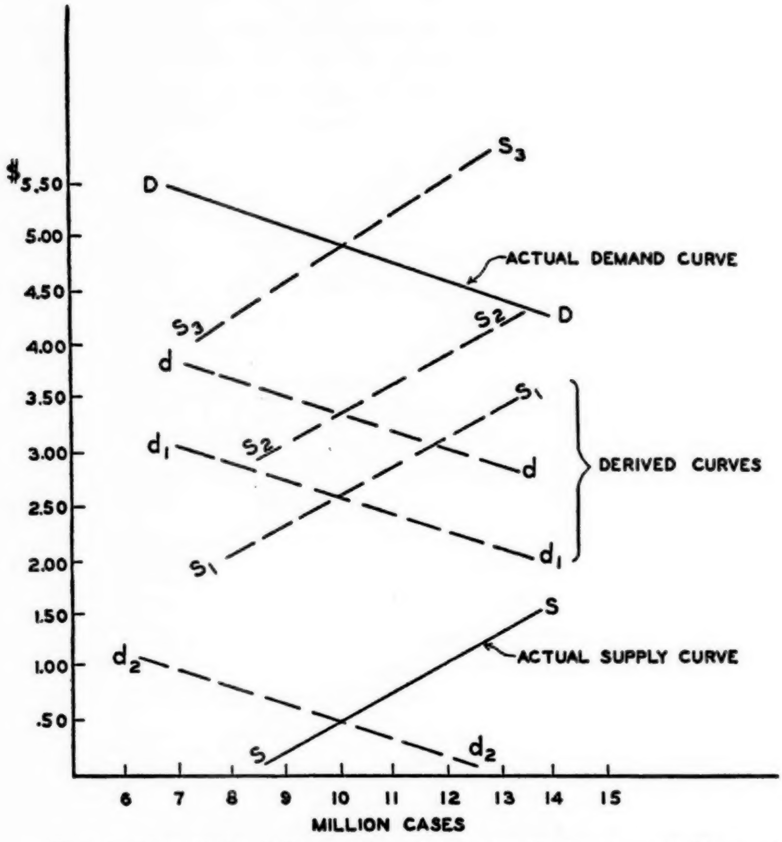

FIG. 2. Hypothetical "Actual" and "Derived" Supply and Demand Curves. In a complex market there is a demand schedule for consumers represented by curve *DD*. From such a demand schedule should be found derived demand schedules at the several market stages back to producers represented by curves *dd*, d_1d_1, and d_2d_2. On the supply side there will be some sort of producers' supply curve *SS* and dealers' supply curves s_1s_1, s_2s_2, s_3s_3, etc.

Even in these cases where an elaborate price structure has been built up, the question may well be raised as to whether it is not often true that more can be sold with fluctuating prices. It is doubtless a prosaic job to increase sales of a standardized product unless

[17] Chamberlain, Edward, *Theory of Monopolistic Competition*, pp. 27–29, 1936.

some price concessions are offered buyers as part of the "sales drive." Salesmen cannot put special stress on all products at once —they get farther by putting on "specials."

But "specials" mean fluctuating prices—or at least the appearance of fluctuating prices. At regular prices buyers in the upper income brackets of course will buy all they want, but at every bargain sale some lower income buyers "go into action." And having succumbed to a bargain, and finding himself with a supply of peaches or apples on the pantry shelf, a consumer may use them more freely because they are "handy," and perhaps also waste a few more than would otherwise be the case. Moreover, fluctuating prices in certain cases may also stimulate the tendency to shift from one commodity to another and lead to increased total consumption via elimination of monotony.

It is sometimes feared that consumer reactions to stabilized prices may be unfavorable. Ordinary boycotts within a country have seldom had any appreciable effect. The cumulative effect of adverse reactions to stabilized prices may be more serious than might be expected since it would call attention to substitutes or to ways of avoiding an article. Already organized attempts to avoid monopolized articles are making their appearance.

General Welfare Aspects of Proration Schemes

In a self-sufficing community a crop so abundant that it all but ruins the trees is looked upon as a godsend. For once, the people can have all the fruit they want. But if they have enough trees to supply a moderate amount in normal years, they will allow much to go to waste in good years. It may not even be worth gathering and carrying to the pigs. If it had to be hauled to market and sold, only so much would be brought forth as it would pay someone to gather and sell at prices attractive to buyers. Horace Greeley in 1869 painted just such a picture when he complained of peaches rotting on the ground in New Jersey while the poor in New York City lacked fruit.[18] It is not uncommon today.

On the basis of the situation pictured in figure 1, a 12 million case crop would pay the producer about $7.00 a ton—just a little over picking and hauling costs. As a matter of fact, at such a price much fruit could not be harvested because some producers would not hire help to pick fruit which might not even repay harvest labor. Clearly a 12 million case pack with its attendant low value would be a calamity for a community in which the major industry is commercial peach growing. Were such low returns caused by

[18] Greeley, Horace, *Political Economy*, pp. 274–275, 1870.

some natural disaster one might easily imagine the Red Cross or even Congress swinging into action with relief!

If, instead of putting up a 12 million case pack, a curtailment program restricted it to 10 million, the farm value would increase to nearly $20 a ton (including the 16⅔ per cent not sold).

The improvement in the individual producer's balance sheet would be even more striking. A 20-acre orchard with good practices on good land should produce 200 tons of fruit. With no control this would be worth, say, $1,400. Cash outlays for supplies, cash overhead, and such additional labor as must be hired on most ranches would run to $2,000; or, if all labor is hired, to $3,000.

With curtailment, gross returns would rise to $3,800 (about 166 tons at $23, equivalent to nearly $20 a ton on the total crop) enough to cover cash outlays even for the man who hires all his labor requirements, and leave something for depreciation and return on investment.

Such controls are doubtless socially justifiable as remedies in occasional extreme situations. It is always difficult, however, to decide when a situation has become "extreme." The widespread interest in this type of control calls for further comment on its social implications if at all widely applied, even in alleged "sore spots."

Recalling that a 12 million case pack in our illustration would return to producers nearly $3,000,000 less than a 10 million case pack, let us note the effect on the other groups concerned. Again referring to figure 1, not as proof but as illustrative, the value of the larger pack is the greater at each of the later market stages. Thus the retail value would be some $55,000,000 for the larger as compared with some $50,000,000 for the curtailed pack. The value added beyond the producers' roadside would thus be some $8,000,000 greater for the larger pack. Hence, aside from the nutritional aspects of a 2,000,000 case addition to the food supply, the added money value would represent about 4,000 man-years of employment—assuming that in the last analysis such items as tin cans, sugar, and freight charges represent mainly labor.

The question may well be raised as to whether there is not some substitute for a curtailment plan with all its short-time and long-time implications. We shy at subsidies, but in some cases they might be the better way out.

One argument often raised in opposition to tariffs on imports is that they divert labor and capital from their most effective uses within a protected area. The same argument holds in those instances where the use of proration schemes leads to the development of areas outside the control scheme. It holds also where such

schemes aggravate the tendency to establish and maintain idle equipment.

In the turmoil and confusion of present-day change, it may seem far-fetched to suggest that residual benefits from prorates, if any there be, will pass into land values. It seems reasonable to suppose, however, that land values will be affected if, after all production adjustments have been made, there are any additional benefits from a prorate plan applied to a crop which can be produced in a given area.

Lands are always changing hands, not only as transfers are made from father to son, but in large measure to others. Obviously purchasers will have "bought themselves out of" any benefits if they make allowance for any added price or for a stabilized earning power ascribed to a given tract of land.

It is sometimes said that this argument concerning the diffusion of benefits into land values applies with equal force to any improvement in a situation such as that arising from the use of a new machine or from the operation of a cooperative marketing association. The real difference is that an improved machine or a successful cooperative marketing association has cheapened the elements of living and hence is socially desirable. By contrast, residual benefits arising from the operation of tariffs or proration-supported schemes, which are in the nature of monopolies, enhance the cost of the elements of living.

Socially such a situation would not only be undesirable, but would not be tolerated once society generally understood that a monopoly value had thus been given certain land owners. The writer has no fears on these grounds if such elusive and misleading barometers as "parity" or "cost of production" can be replaced by a producer-consumer behavior concept in the minds of control administrators. Outside or inside producer behavior and consumer shifts all must be watched.

Discussion by Budd A. Holt

United States Department of Agriculture

The title of the paper discussed herein might better have been "Some Possible Incidental Economic Effects of Restricting Internal Trade by Market Prorates." The paper does not attempt to determine the effects of prorates on internal trade nor is it confined to the trade restriction aspects of market prorates. Instead, market prorates, while not specifically defined, are assumed to be a form of internal trade restriction. They appear throughout the paper as federal or state regulations, applicable to a commodity produced in a given area, which continue to reduce the quantity of the commodity which may be marketed below the quantity which would otherwise be marketed.

The various possible economic effects of such regulations which are

examined are largely incidental or in addition to the purposes for which the programs are undertaken. Thus, no attempt is made to appraise the results of market prorates in increasing farmers' purchasing power, or to trace the effects of such results on internal trade.

Thus by definition and scope, one would expect but one conclusion, namely that such prorate trade restrictions are bad socially in that they reduce our standards of living, make non-economic uses of our factors of production, and breed further monopolies to the same end. At best, no one would gain except certain owners of land who would finally sell out and go to California or, if already there, to Hawaii.

For some reason, however, these are not quite the conclusions of the paper. Dr. Erdman touches on all of these logical conclusions, which by definition and scope should appear inevitable, but he does not so conclude. Perhaps he is too close to the areas where these prorates operate to feel justified in drawing such conclusions; or have I misinterpreted his paper?

Now, I also am too close to these programs to draw such conclusions in respect to the market prorates, but I do not conceive of market prorates as being regulations or agreements which continue to reduce the quantities of commodities that may be marketed below the quantity that would otherwise be marketed. Such a concept excludes from consideration prorates which operate throughout a series of short-time intervals in which the purpose is not necessarily to reduce the quantity of a crop to be marketed, but to effect an orderly distribution of the crop. Such is the primary objective of the federal marketing agreement and order for California and Arizona citrus. Under this program, it has been possible to move a larger volume than otherwise would have moved at a given price level, and apparently a larger volume than would have actually moved irrespective of price. This conclusion may be contrary to the views of Mr. Edward Chamberlain, referred to in this paper and concurred in by its writer, that sales are greater under fluctuating prices.

The fact that weekly prorates may be continued throughout a given season or several seasons, does not mean that such prorates effect continuous reductions in the quantities marketed. In the California-Arizona Citrus program, for instance, it has been necessary to operate such prorates during weeks in which no reductions in the quantities to be marketed were desired or attempted. Prorate regulations in such instances are issued to give continuity to the program and to preserve an equitable prorate basis for the season in anticipation that supply curtailment during certain weeks will be necessary. Actual shipments under such weekly prorates frequently fall substantially below the maximum amounts permitted to be shipped.

Furthermore, a prorate regulation which, according to its terms limits the total quantity of a commodity that may be marketed for a given season, may actually increase the quantity marketed. For instance, the production of clingstone peaches, used almost solely for canning purposes, may be sufficient to make a pack of 13,000,000 cases. The fact that a market prorate permits only 10,000,000 cases to be packed does not necessarily mean that there has been a reduction of three million cases in the quantity marketed. Thus, in 1932, without control, only 6,430,000 cases of clingstones were packed when the production was sufficient to permit a pack of 13,000,000 cases. Fear of loss from making an excessive pack may result in an actual pack below what would have

been realized had such risks been removed by a prorate order which fixed a reasonable limit on the pack.

As already pointed out, it cannot be concluded that, since a market prorate regulation for a given week reduces the quantity marketed that week, the volume for the season will also be reduced. Likewise, it cannot be concluded that, if a prorate regulation does reduce the total quantity marketed for an occasional year, the long time effects of such prorates are to reduce the general level of the quantity marketed. The alternative of maintaining producers' purchasing power during the occasional year of excessive supplies may be extreme fluctuations from year to year in the quantities produced and marketed, with a lower average quantity marketed.

Finally, market prorates which operate to prohibit the shipment of certain inferior qualities of commodities, such as cull potatoes and immature fruits, may well, in the long run, increase both the quantity and the quality of the commodity marketed, or at least of the commodity actually consumed.

The paper contains a number of observations concerning producer attitudes and response to price indicating how they may act in respect to proposed market prorates and react as a result of such programs. It appears that producers will not support prorates which restrict market supplies to the degree necessary to meet their price desires, but should they support such prorates and they were made effective, so that the desired price is realized, production in subsequent years would be expanded, necessitating still higher prices in order to meet costs which would likewise be increased. Such higher prices, however, would necessitate further supply restriction and again even more strenuous producer resistance would be encountered. It is not clear just where these actions and reactions would be balanced. Obviously, if production continues to expand as a result of market prorates, necessitating higher prices and more rigid limitations on supplies, serious economic losses would be incurred.

While there is a tendency in some instances to use market prorates so as to encounter the difficulties pointed out above, I believe they represent abuses rather than uses of such programs. If the returns which producers receive as a result of market prorates are sufficient to over-expand production, then such difficulties are inevitable. The same is true if they retard too greatly adjustments which must inevitably be made, such as adjustments needed to correct over-plantings of tree fruits and nuts.

Except where market prorates are used to improve the efficiency of marketing, including reductions in marketing costs, improvements in the qualities of market services, and prevention of unnecessary handling margins, they may be justified only as emergency measures. There may, of course, be some differences in opinions as to just when an emergency exists among producers. The mere failure to obtain parity prices cannot well be called an emergency. However, when prices go to such levels that producers can barely afford to harvest their crops or they receive red ink returns from shipments, there can be little question but that an emergency exists. Such conditions are frequent and of a recurring nature for many specialty crops, such as fruits and vegetables. They may be due to abnormally large yields, to weather conditions which may affect the time of harvest, sudden changes in market demands, and to a large number of other causes. It should also be recognized that the meeting of an emer-

gency among producers, which may have resulted from their own actions in over-planting, may prevent even greater emergencies among consumers should these producers swing in the opposite direction and greatly underplant.

Reference is made in the paper to proration in the case of California canning peaches and asparagus. In respect to canning asparagus, attention is directed to expanded production, unprofitable operations by canners, and a reduction in the percentage of the pack made in California. Dr. Erdman recognizes that factors other than proration may have contributed. I believe that a careful analysis of this situation will show that these other factors were of primary importance, and that the illustration is largely one of a marketing agreement getting into bad company. The federal marketing agreement in this instance operated during two seasons, 1934 and 1935, for which the average pack was 2,076,000 cases, compared with an average pack of 1,732,000 cases for the three years preceding the program, and an average pack of 2,211,000 cases for the two years following the program.

The calculations which are made with respect to canning peaches do not go quite far enough to permit conclusions as to the effects which curtailment of pack may have on internal trade. From the figures given, which are sufficiently accurate for the purposes used, it is noted that a gain of $2,960,000 to producers would be accompanied by a loss of $8,400,000 in the amounts going to canners, transportation companies, wholesalers, and retailers.

Dr. Erdman contends that this loss would be mainly to labor, and notes that the amount is sufficient to employ 4,200 workers at $2,000 a year. It is unnecessary to question these contentions. However, I wish to raise a question as to the other side of this equation. The $8,400,000 loss is, of course, offset by $5,440,000 less expenditures by consumers for canned peaches, in addition to the $2,960,000 greater purchasing power going to producers. Is it not true that these amounts might well be expended in other ways, so as to employ an equal or greater number of people. For instance, the amount is sufficient to employ 18,027 persons at a rate of $466 a year, which is given in the paper as the amount which a superior peach orchard of 20 acres operated under control would return to its owner over and above cash outlays and depreciation.

Discussion by M. P. Rasmussen

There can be little disagreement with Dr. Waugh's thesis that instances of indirect restrictions to internal trade are becoming more numerous, and that economists should be actively studying the facts in the case. If, in these days of "pressure-groups" a generally accepted definition of what is meant by "the general welfare" can be determined, it follows that economists should lend all possible assistance in the formulaton of a program which will effectuate such general welfare. As to the acceptance and use of such a program, however, I am not so sanguine.

The principle of states' rights has been fundamental in our system of government since its inception. The principle of states' rights has always clashed, more or less, with the principle of free trade in the United States, since states' rights typify varied and numerous approaches to the solution of economic and social problems, and adaptation of methods to particular local situations.

It seems likely that this clash has become more pronounced, first,

because of the depression and, second, because of development of improved means of transportation. The depression has accentuated efforts of states (and even counties) to find relief from low prices by attempting to shut out goods from other producing areas. Long-distance trucking has lessened the advantages of producers in nearby areas, while increasing the disadvantage of those farther away.

Economists will differ as to the degree of alarm which should be felt over the situation. It seems probable that pressure for erection of interstate barriers will lessen as prosperity returns, and adjustment will inevitably be made to changes in transportation.

The cure for misguided efforts to set up interstate trade barriers would seem to lie in the direction of education of the public concerning the advantages of free trade, rather than in the direction of conferring unlimited power upon Congress to "regulate" everything. There is some evidence to indicate that this would merely offer sectional pressure groups further opportunities for trying out schemes to warp production and trade out of line with sound economic principles of production and marketing.

Some state and federal laws have not been designed to act as barriers to trade, but the practical effects are often the same. Motor vehicle laws offer a good illustration of how state laws affect the situation. One of the obstacles to the efficient operation of motor trucks is the variations in laws governing the operation of motor vehicles among states. What one state approves as standard safety and emergency equipment may be contrary to the laws of another state. Maximum permissible widths, heights, and lengths of trucks vary widely, as do speed limits, gross permissible weights of load of truck or trailer, taxes, laws of labor, and other items. Efficient operation of motor trucks often depend on crossing state lines. Consequently, both private and commercial truck operators are often called upon to comply with several sets of complex regulations. It is bad enough to have to become familiar with the provisions of laws in one state without having to know the varying provisions of laws in a number of states.

In a similar manner, the freight rate structure is an example of how federal regulation may act as a barrier to interstate commerce and need some overhauling. The existence of class rates in one freight territory and of commodity rates in other freight territories are often difficult to reconcile. The natural result of such non-uniform and probably uneconomic freight rates is restriction of areas of distribution for certain regions which have to operate under class rates, and development of new areas for those regions which enjoy commodity rates.

Therefore, as a supplement to the remarks of Dr. Waugh I would suggest that simplification and unification of some state and federal laws might go a long ways towards smoothing out the barriers to interstate commerce.

Time is too limited to discuss here the proposed wages and hours bill, but it should be apparent to all that any bill of that type cannot fail to do between states what national tariffs have done between countries, i.e., to protect one state or region against another.

It is probable that most economists will agree with the editor of the New York Trust Company Index who says that "barriers, as they exist today, may still be of minor importance. The danger lies in the establishment of a trend in the growth of legal sectionalism through legislation actually proposed or now looming on the horizon."

THE FUTURE OF MILK CONTROL

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Because the immediate impetus to the development of milk control measures during the past few years has come very largely from conditions associated with the great depression, it is particularly pertinent to ask at the present time upon what basis, if at all, they can properly be continued in the future. In public debates, in economic discussions, in legal arguments, they have been commonly referred to as emergency measures. The report of the joint legislative committee in the state of New York in April 1933, upon the basis of which the earliest and most important control scheme was set up in this country, laid great stress on the critical conditions existing in the dairy industry. In March of the present year another joint committee reported their conclusion that "the emergency which gave rise to the use of the police power in the enactment of the Milk Control Law no longer exists."[1] Partly for this reason itself, partly because of their doubt about the constitutionality of the law in the absence of an emergency, and partly because of the breakdown of enforcement in the metropolitan market which had followed the court decision in 1935 exempting out-of-state milk from the control of the authorities at Albany,[2] that joint committee recommended the discontinuance of the price-fixing efforts which had been carried on during the past four years. This recommendation, which was immediately followed by the legislature, raises very definitely the question of the future of milk control. Will other states follow the lead of New York in abandoning price control as they followed her lead in establishing it? Should this be done, or should further efforts be made to establish milk control on a more satisfactory and more permanent basis?

It is premature as yet for anyone to attempt to picture in detail the exact forms and methods of control that may be developed in the future, but the time has clearly come when the fundamental questions of long-run social trends and basic policies of economic regulation must be given a fuller and more deliberate consideration than was possible during the emergency period itself. The present paper is intended merely to direct attention to some of these fundamental issues. The discussion falls into four main parts. It is argued: first, that the general trend of historic develop-

[1] Legislative document (1937) No. 81, p. 19.
[2] Baldwin v. Seelig, 55 Sup. Ct. 497.

ment is such as to call, in the future, for a greater degree of conscious social control over economic activity than there has been in the past; second, that the milk industry is one where the case for an extension of public regulation is particularly strong; third, that in order to have the greatest permanent usefulness, control agencies must be more definitely set up to promote the interest of the general public in the efficient operation of the milk industry and must be less narrowly committed to the promotion of the interests of particular producer groups; and finally it is held that the legal and administrative difficulties which stand in the way of successful achievement in this field, are by no means so great that they could long defy the social constructiveness of a progressive and intelligent people definitely determined to overcome them.

As a basis for any discussion of this sort we must begin by taking into account the general long-run trend towards more conscious social control over all economic activities. An examination of the history of economic progress in the western world during the past one hundred and fifty years gives convincing evidence of the need that has been found, as nations advance towards industrial maturity, for a modification of the out-and-out laissez-faire policies which were so confidently recommended by economists and so readily accepted by statesmen in the latter half of the eighteenth century. Adam Smith and his followers were the progressives of their day, urging the abandonment of obsolete regulations which stood in the way of the Industrial Revolution and depicting with uncritical enthusiasm the conditions that might be expected to prevail under a Utopian system of free private enterprise. Actual experience with an economic world in which governmental restraints had been largely removed quickly revealed to practical men many serious defects which had been unforeseen by the early prophets of the new era. Opportunities for making personal gains by methods that involved unpaid social costs were widely prevalent, bargaining powers in many markets were far from being equal, ignorance prevented consumers from protecting themselves effectively by the freedom of choice that they were given in their buying, competitive practices often proved extremely wasteful, and the existence of monopoly in many cases was almost inevitable. Even before the old regulations of the Mercantilist period had been entirely cleared away it became apparent that the job with which society was confronted was not simply one of demolition, but was one of reconstruction, that implicit faith could not be placed in the guidance of any "invisible hand," and that the real problem to be tackled was the develop-

ment of a new set of rules for the carrying on of economic activity which would be more appropriately adapted to the changing conditions of a dynamic age.

For more than a hundred years now the development of this modern code has been going on at an ever-increasing rate. For various reasons the movement in this country has lagged by about a generation behind the parallel movement in Great Britain, but there has been a noticeable tendency since the Civil War for the gap between them to be narrowed. It is against this background we must view the events of the past few years if we are to see them in their proper perspective. The crash that came in 1929 dramatically displayed some of the most serious defects in the economic system as it existed and suddenly created an urgent demand for government action. As prosperity returned a recession of social control was to be expected. Control in an emergency would naturally be stricter than in normal times. Moreover, since most of the measures had of necessity been hastily prepared and had been imperfectly administered, there were valid grounds in many cases for strenuous opposition to the continuance of control in those particular forms. What we must guard against is the mistake of supposing that the *normal* policy for this country can be anything approximating even that measure of laissez-faire which prevailed a generation ago. We must not allow the recent crisis to loom so large in our thinking that it prevents us from seeing beyond it historically the highly significant trend towards improved and extended policies of economic regulation in the public interest.

Our next concern is with the special case that can be made for control over the milk industry. The grounds for exercising public control over the fluid milk business have long been recognized to be exceptionally strong. Milk is an indispensable food for children and an important element also in the diets of adults. It is obtained very largely from supply areas adjacent to the consuming centers where dairying tends to become the predominant agricultural enterprise and the principal source of income for the producers. It is a product which is exceptionally difficult to handle safely and economically. Not only is it the most perishable of all products, but it is also peculiarly susceptible to fraudulent adulteration and extremely liable to the dangers of accidental contamination. When to this is added the fact that a rather constant weekly rate of consumption throughout the year is characteristically associated with a wide seasonal variation in production, the fundamental difficulties in the situation become readily apparent. The first breach in the laissez-faire conduct of the milk industry in this

country was made in 1856 when the state of Massachusetts enacted a law prohibiting the adulteration of milk. For many years thereafter regulation was primarily concerned with the prevention of deliberate fraud. Then towards the end of the century, with the development of the science of bacteriology, the sanitary aspects of milk control came into especial prominence. Between that time and the present day elaborate codes of rules to govern the methods of production and handling of milk have been worked out and have been accepted, both by the parties concerned and by the law courts, as essential to the satisfactory conduct of the industry.

Throughout this period, although efforts were directed mainly to the protection of public health, the more purely economic problems of the industry were claiming an increasing share of the general attention. Economists, even in their most general discussions, turned commonly to the field of milk distribution for illustrations of the "wastes of competition." By 1912 many of those who had studied the industry carefully were recommending, on grounds of both health and economy, that milk distribution should be made a regulated monopoly or public utility. Wartime policies encouraged the organization of market-wide dairy cooperatives and the establishment of collective bargaining arrangements between them and the larger dealers. Compulsory pasteurization laws and dealer bonding laws, together with economies of scale present in the industry for other reasons, led in many markets to a considerable degree of concentration in the distribution business. This movement, although it failed to eliminate all wasteful duplication, did introduce into the situation new elements of monopoly power important enough to constitute an additional reason for the extension of conscious social control. The depression accentuated the particular problems of the industry and focussed attention on the difficulties of the producer groups. Strong support was found for the establishment of both state and federal agencies designed to bring order and prosperity back to the industry through programs of market control. The Dairy Section of the AAA at one time or another, has had its administrators in 52 separate market areas, while state control schemes have been set up for varying periods of time in 27 different states. Even the courts have been more favorably disposed towards these milk control measures than their general attitude on economic questions might have led us to expect. Serious constitutional difficulties have arisen it is true, with regard to the jurisdictions of state and Federal Governments, but in the celebrated Nebbia decision, and in others that

followed, the Supreme Court upheld the validity of laws, such as that of New York, in so far as they applied to business carried on within the territorial limits of the states by which they were enacted.[3]

Next we turn to our third main point, the long-run objectives of milk control. In considering what recent experience augurs for the future of milk control it is important to keep in mind constantly the fact that the activities of the existing agencies have been profoundly affected by the limited character of the objectives set before them. Although the verbal statements of objectives contained in the various laws have generally, made reference to the interests of dealers and consumers, it has been rather definitely understood in almost every instance that the principal end to be sought was the improvement of the producers' economic position. An increase in the income of dairy farmers was accepted as an objective of public policy, not only because the farmers themselves, who were suffering acutely, constituted an influential group in the community, but also because it was believed that an increase of agricultural purchasing power was a prerequisite for the general business recovery that was sought, and because it was argued that in the absence of adequate returns for their milk dairymen could not maintain the volume and the quality of production required. With this basic reasoning accepted in advance and with the experience of the successful bargaining cooperatives in the prosperous twenties as a guide in the formulation of practical policies, it was only natural that advantage should have been taken of the inelastic character of the consumers' demand, that Class I prices should have been raised and that efforts should have been concentrated for the most part on the problem of preventing the surplus from demoralizing the market. Without attempting to measure the success that was actually attained in the enhancement of farm prices, and without passing upon the merits of that end as a short-run objective, I am concerned at the moment merely to stress the fact that an objective thus narrowly conceived is certainly inadequate as the basis of any long-time program of control.

This type of program has not been peculiar to the milk industry. The same characteristics have been common to most of the recent control schemes that have been introduced in this and other countries. Confronted with shrinking demands for their products the members of particular economic groups have sought aid from governmental authorities in protecting their markets

[3] Nebbia v. New York (1934), 291 U. S. 502, 54 S. Ct. 505.

against competition from outside and in restraining the competition among themselves which threatened to prove suicidal. In each case it was argued that society had an interest in preventing a chaotic collapse in the industry or the ruin of the group immediately concerned. In this way a patchwork of schemes came into existences, which did provide for a greater degree of conscious social control over economic activity in the sense that group action under government auspices replaced to some extent the individualism of earlier years, but which still depended very largely on the ordinary market mechanisms for the coordination of these separate groups into a systematic whole. Perhaps this was the best that could be done in the circumstances, perhaps it should be regarded as a necessary experimental step in the progressive development of the economic organization of society, but its underlying deficiencies must not be overlooked. Groups which are organized to secure the benefits of market control are clearly committed to policies which are essentially monopolistic in character. This is true whether the group is made up of industrialists, distributors, farmers or trade unionists. The question we must ask is whether the activities of all these groups with their independent business policies will be made to contribute satisfactorily to the general welfare of society by the simple operation of the market mechanism. And the answer to this is almost certainly in the negative. Since the power of monopoly, to whatever extent it is present in any situation, is the power to restrict the quantity of the commodity bought or sold, the tendency would be in a society of the sort described for production to be unduly curtailed. There would also remain inevitably sufficient inequality in the bargaining powers of different groups to distort seriously the use that is made of the community's productive resources. It is clearly necessary that a broader concept of its ultimate objective than has so far prevailed should be accepted as a basis for the milk control of the future. That objective must be twofold: first, the conscious development, for the industry as a whole, of a form of organization and a method of operation which will give it the highest attainable degree of efficiency from the social point of view; and second, the settlement of all disputes arising from conflicts of interest between the economic groups most directly concerned in the industry (farmers, distributors, wage workers, and consumers) through an honest and intelligent application of the basic principles of social justice.

Finally we must give attention briefly to the all-important practical problems of actual administration. Even if we are agreed

that there is need for a substantial measure of social control over the milk business, and even if we are agreed upon the general character of the objectives to be sought, we may still despair of the possibility of setting up any type of government agency capable of carrying out such a program successfully. Federal control has been withdrawn from 29 of the 52 markets where it has been tried. State control laws have been allowed to lapse in one-third of the states where they were originally enacted. Dissensions between state and federal authorities have frequently interfered with the development of the most satisfactory arrangements for effective control. Conflicts of economic and political interests between neighboring states have prevented the attainment of the most desirable regional understandings. Clashes between government officials and cooperative leaders have injured the morale in many instances and made enforcement doubly difficult. The resistance from opposition groups of producers and distributors has generally been fierce and uncompromising. Litigation has been continuous and enforcement by no means effective. Loopholes for evasion have been discovered by the resisters and inequitable burdens have been placed on those who conformed to the requirements of the authorities. Expenses have been high and achievements have, on the whole, fallen short of what was expected when the control agencies were first created.

The experience to date, when summed up in this way, seems distinctly disappointing yet there is in it much which is definitely encouraging for the future of this type of work. The difficulties with which the market administrators and control boards have been confronted during the comparatively short period of their existence have been extraordinarily great. Too much has generally been expected of them. The markets with which they had to deal were in chaos, not simply because of the depression, but also, because of the breakdown of the control by private methods of organization which had developed in the twenties. The original laws were hastily enacted with no precedents to build upon. The necessary personnel to administer them had to be quickly recruited and trained on the job. Techniques of administration had to be learned by experience. Most of the factual information required by the control agencies had to be specially collected for their own use after they began their operations. The constitutionality of the laws was openly questioned and by many the presumption that they were invalid was accepted as a justification for disobeying them freely. Lawyers and judges, unfamiliar with the milk business, had difficulty in even understanding the nature

of the pricing and prorating arrangements that were put into effect, let alone adjudicating upon their standing in the courts. Everything was new and the confusion was naturally serious.

Out of the experience of the past four years, however, many gains have come. Among them the most notable have been: a clarification of fundamental issues; an improvement of the laws themselves; a much greater degree of certainty about their constitutionality; a record of reasonable success in certain particular markets; an accumulation of factual information which can be used as a guide in future decisions; a trained and selected group of administrative officers, not large in numbers, but important as a nucleus around which to develop a larger and more adequate corps; a knowledge of the principal types of problems that are likely to arise in connection with milk marketing and a much better understanding than ever before of the possible methods of dealing with them; and finally some useful precedents to follow in the working out of plans for effective cooperation between the state and federal authorities where inter-state shipments are involved. Viewed in this way the record of the recent experiments in milk control in this country indicates the feasibility of their continuance on a permanent basis and gives promise that substantial progress may be expected. The difficulties to be encountered are great, but we have reason to believe that they are not insurmountable. The ideal of orderliness in milk marketing is almost unanimously accepted. It has been given to some markets by highly organized groups of farmers and distributors working together. A more satisfactory method of attaining it is, in my opinion, through the supervision of a properly constituted public authority. Not only can such an agency give greater assurance of long-continued stability, but it can also give greater assurance that the interests of all parties concerned will receive due consideration in every decision that is made. Whether we actually get effective control of this sort exercised in the public interest depends, not so much on the technical problems of law or administration, as upon the force and the character of the public opinion that develops behind the demand for government action in this sphere. For that reason I feel that it is of greatest practical importance that the broad fundamental issues briefly referred to here should receive in the next few years much more attention than they have heretofore.

WESTERN CREAM FOR EASTERN MARKETS

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Western cream has been something of a bugbear or a big bad wolf to farmers producing milk for the large eastern markets. They have known very little about it, but suspected that the supply was very great. They have feared that their markets might turn to the West for cream, and even for fluid milk, as they have already done for butter, cheese, and evaporated milk. Western cream has been a favorite subject for dairy orators when confronted with a dearth of other issues. Western cream also has been troublesome to the fluid milk bargaining associations because it has been an entirely uncontrolled part of the market supply. It has been an unpredictable but important factor in determining the prices and outlets for surplus milk in the eastern milk sheds.

From time to time, since 1925, we have gathered information as to quantities and prices of western cream shipped to New York and other eastern markets. In 1936, the Cooperative Division of the Farm Credit Administration joined us in making a survey of plants that have been shipping this cream. My paper is based mostly upon the results of that survey.

So far as I know, the first sizable shipments of western cream were made about 1924. The volume increased steadily until about 1931. This trade was encouraged when the supply of Canadian cream was shut off by sanitary restrictions and higher tariffs adopted between 1926 and 1930. After 1931 the demand for western cream slackened because of increasing surplus production in the eastern milk sheds. The total volume of western cream shipments has not changed much since that time. During the year 1931, the three largest markets in the East received 441,000 cans of western cream. During 1937, they have received somewhat less than 400,000 cans, but this quantity represents practically the same percentage of total cream receipts as did the shipments of 1931, namely, a little less than 16 per cent (table 1).

TABLE 1. RECEIPTS OF WESTERN CREAM AT BOSTON, NEW YORK, AND PHILADELPHIA, 1931 AND 1937

Market	Quantity received		Percentage of total cream receipts	
	Year 1931	12 months ending October 1937	Year 1931	12 months ending October 1937
	1000 40-qt. cans	1000 40-qt. cans		
Boston	164	244	27.8	42.3
New York	49	55	2.6	3.5
Philadelphia	228	78	68.3	34.3
Total	441	377	15.7	15.8

Of course, not all the cream shipped from the West is directed to the three large metropolitan markets, Boston, New York, and Philadelphia. During the 12 months ending with August 1936, these three large markets received about 60 per cent of the total shipments of western cream. The total amounted to 694,000 forty-quart cans (table 2). I might say that practically all of this cream is shipped in 40-quart cans and contains 40 per cent of butterfat. Each can of cream is equivalent to between 10 and 11 cans of ordinary milk. In recent years, the milk equivalent of the total shipments of western cream to markets in the Northeastern States has exceeded the total volume of milk sold from all the farms in Maryland and Delaware, or Maine and New Hampshire.

TABLE 2. SHIPMENTS OF WESTERN CREAM TO EASTERN MARKETS, FOR 12-MONTH PERIODS ENDING JUNE 1933 AND AUGUST 1936

Market	Shipments during 12 months—	
	Ending in June 1933	Ending in August 1936
	1000 40-qt. cans	1000 40-qt. cans
Boston metropolitan area	210	176
Upper New England	10	24
Connecticut	23	46
Rhode Island	22	2
New York metropolitan area	102	90
Up-state New York	52	87
Philadelphia metropolitan area	151	138
Other New Jersey	4	6
Other Pennsylvania	20	16
Maryland	6	36
Delaware	5	16
Washington metropolitan area	10	37
Other Virginia	3	20
Total	618	694

Quality Requirements of Eastern Cream Markets

Manufacturers of ice cream and cream cheese have been the principal buyers of western cream. They are not so particular as milk dealers about the quality of the cream they buy. Good body and flavor, as well as low acidity and low bacteria count, are of much greater importance in cream for table use than they are in cream for manufacture. Of course, there are wide differences in the requirements of individual buyers, both among the manufacturers and among the distributors.

The policies of municipal and state health authorities with respect to cream have varied from complete exclusion, by the City of New York, of all cream produced outside the local milk shed, to almost complete non-interference by the City of Boston. Between these extremes we find the State of Pennsylvania, the City of Newark, New Jersey, and others which grant permits to shippers who comply with definite requirements, as determined by periodic inspection of the plants and dairies. Then there are other

markets, such as Baltimore, Washington, and upstate New York, that admit cream for manufacture with comparatively little regulation of sources.

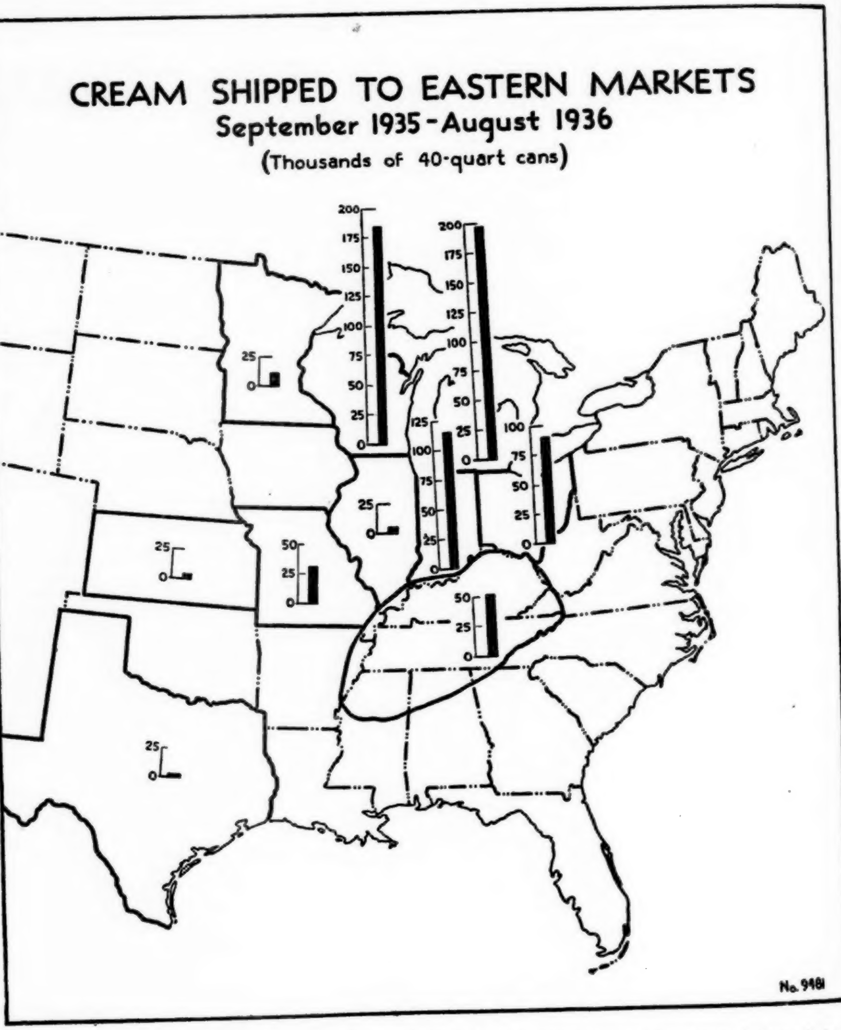

Fig. 1. Cream for eastern markets originated in 12 central western dairy states, a high proportion of the total coming from Michigan, Wisconsin, Indiana and Ohio.

At present there is a great range in sanitary standards that are adhered to at the western cream plants. Many of them have been working on extensive improvement programs, preparing both plants and farms to meet inspection for markets in Pennsylvania

and New Jersey. A few of the plants and the farms which furnish their supplies now compare favorably with Grade A plants and dairies in the East. On the other hand, there are some where the sanitary standards remain at the usual level for dairy manufacturing plants. In general, the conditions which make for cream of high quality are being established rapidly in the western territory.

Sources of Western Cream

Let us now consider where this western cream comes from. During the 12 months ending with August 1936, varying quantities of this cream originated at 75 shipping points in 12 states. As shown on the map, the general area from which this cream was shipped extends from Ohio and Indiana southwest through Kentucky, Tennessee, to Mississippi, Texas, Kansas, and Missouri; and from Michigan west to Minnesota, including Wisconsin and Illinois (figure 1). The States of Michigan, Wisconsin, and Indiana each supplied between 100,000 and 200,000 cans each. During the year mentioned, shipments of fresh cream to eastern markets were reported from 30 stations in Wisconsin and 13 stations in Michigan. In general, the sources of western cream are not so widespread today as they were several years ago. A number of the more distant shipping points have dropped out.

Western Cream Plant Operations

The following information concerning the operations of the western cream plants was ascertained in a survey that we made throughout the western cream territory in the summer of 1936. Stops were made at 30 or more plants and detailed information was recorded for 24 of these.

Milk and Cream Supply.—The first item of interest about these plants is their sources of supply. All of the plants included in the survey received at least a major part of their butterfat in whole milk. Only six of the plants received any farm-separated cream, and less than 2 per cent of the total receipts of butterfat was received in this manner. A number of the plants received additional supplies of milk and cream from other plants, especially during the spring and early summer (table 3).

These western cream plants handled large volumes of product. In table 4, the plants are classified by volume on the basis of the number of 40-quart cans of cream equivalent which they received daily. Their volume is expressed in these terms because they indicate how frequently the plants would be able to ship a carload of

cream. Practically all shipments of this cream are made in 200-can lots. That is the minimum quantity for which carlot rates are granted by the railroads. The more frequently a plant can ship a carload of cream, the better chance it has to deliver top-quality cream to the eastern buyers. The plants having the best reputation for quality cream ship every day, or at least three or four times a week.

TABLE 3. SOURCES OF BUTTERFAT RECEIVED AT 24 DAIRY PLANTS IN THE CENTRAL WEST, SHIPPING CREAM TO EASTERN MARKETS

Source	Number of plants	Percentage of total butterfat receipts	
		November 1935	June 1936
Direct from farmers:			
Milk	24	70.7	81.0
Cream	6	1.6	1.8
From other plants:			
Milk	7	10.9	11.3
Cream	7	10.8	5.5
Frozen cream from storage	2	6.0	0.4
Total	—	100.0	100.0

It will be noted that 40 per cent of the plants, that is, 10 plants out of the 24, had sufficient volume in June so that they could ship a full carload of cream every day. There was only one plant out of the 24 that would require as much as four days to accumulate a carload of cream. The cream from that plant is shipped together with that from another plant under the same management. When you consider that one can of cream is equivalent to at least 10 cans of milk, you will realize that these are very large plants. This fact is emphasized by comparing the size classification of the western cream plants with the cream shipping plants in the New York milk shed (table 5).

TABLE 4. DISTRIBUTION OF CREAM PLANTS IN CENTRAL WESTERN STATES AND IN THE NEW YORK MILK SHED AS TO VOLUME OF PRODUCT

Number of 40-quart cans of 40% cream that could be made from total plant receipts of butterfat, daily	Percentage of total number of plants having the indicated volume	
	24 western cream plants June 1936	98 cream plants in the New York milk shed June 1937
Less than 50	4	33
50–99	16	29
100–149	16	19
150–199	24	8
200–249	16	5
250 and over	24	6
Total	100	100

Another matter of some importance to plants that are attempting to make a profit out of shipping cream to eastern buyers is the size of the dairies from which their supplies are drawn. In this respect many of the western cream plants are handicapped. One-

fifth of the plants in the western cream territory are supplied by dairies that average less than 1½ cans of milk a day during the month of June. Only one-eighth of the plants were supplied by dairies that averaged 4 cans or better during the month of June. In contrast to this situation, more than half the pl nts in the New York milk shed are supplied by dairies that average 4 cans a day or more during the month of June. It is significant that these western plants supplied by very small dairies are not approved for the markets which have the more strict sanitary requirements.

TABLE 5. SIZE OF DAIRIES SUPPLYING MILK TO CREAM PLANTS IN THE CENTRAL WEST AND IN THE NEW YORK MILK SHED

Quantity of milk delivered daily per farm (40-qt. cans)	Percentage of total number of plants supplied by dairies with indicated average quantity per farm	
	24 western cream plants June 1936	98 cream plants in New York milk shed June 1937
Less than 0.5	—	—
0.5–0.9	—	—
1.0–1.4	21	—
1.5–1.9	8	2
2.0–2.4	17	9
2.5–2.9	4	6
3.0–3.4	17	13
3.5–3.9	21	14
4.0–4.4	12	20
4.5–4.9	—	16
5.0 and over	—	20
Total	100	100

Flexible Operations.—There has been some discussion about the ability of these western cream plants to shift their operations as prices change. It has been asserted, for example, that certain plants have continued to ship cream into the eastern markets after the price of cream had obviously fallen so low that it would return less than butter value to the shippers.

Actually most of the western cream plants are equipped for flexible operation. Among the 24 plants that were included in our survey, only three depended upon cream shipments to the East as the only outlet for their butterfat (table 6). Two of these were associated with other plants which had flexible operations. Several of the plants in this list were surplus plants for Chicago, Milwaukee, Cleveland, Pittsburgh, and other markets. Two of these shipped some whole milk as well as cream, and two others made bulk condensed milk and ice cream mix, as well as cream. It will be noted that two plants in the list made evaporated milk in addition to shipping cream. This combination of activities is due to the fact that surplus cream was derived from the standardization of milk to be evaporated, and this cream was disposed of by shipment to eastern buyers. With one or two exceptions, the cream plants that

were visited on this survey were watching very carefully the relative returns from different uses of their butterfat and were prepared to shift promptly from the shipping of cream to other operations when it paid to do so.

TABLE 6. USES OF BUTTERFAT BY 24 WESTERN CREAM PLANTS

Products made	Number of plants
Cream only	3
Whole milk and cream	2
Evaporated milk, and cream	2
Cream and butter	10
Cream, bulk condensed milk, and ice cream mix	2
Whole milk powder and cream	3
Cream cheese and cream	2

The entire group of western cream plants included in the survey disposed of 40 per cent of their butterfat as fresh cream to eastern buyers in November 1935, and about 24 per cent in June 1936 (table 7). Butter, frozen cream, and fresh cream for mid-western markets also were important outlets for their butterfat. The cheese mentioned here was principally cream cheese.

TABLE 7. UTILIZATION OF BUTTERFAT BY 24 DAIRY PLANTS IN THE CENTRAL WEST SHIPPING, CREAM TO EASTERN MARKETS

Product	Number of plants		Percentage of total butterfat used	
	November 1935	June 1936	November 1935	June 1936
Whole milk	9	6	6.2	0.5
Fresh cream—for eastern sale	15	11	41.4	23.6
Fresh cream—other	17	15	26.1	15.2
Frozen cream	4	11	1.6	18.1
Ice cream mix	4	4	1.9	3.8
Butter	8	11	5.2	22.8
Cheese	7	6	11.8	9.1
Dry milk	4	4	1.8	1.9
Evaporated milk	6	4	4.0	5.0
Total	24	24	100.0	100.0

It may be of interest to observe how the skim milk was disposed of at these plants. Fourteen of the 24 plants were equipped to make dry skim milk by the roller process, and 12 by the spray process. A few plants were equipped to make both roller and spray powder. More than three-fourths of the total skim milk solids were made into powder (table 8).

It is obvious that these western plants are capable of increasing their shipments of cream to eastern markets to a very considerable extent. We obtained from each plant a statement as to the total quantity of cream which they could ship each month of the year if prices were attractive in the East. As indicated in table 9, these 24 plants could ship nearly three times as much cream during the year as they did ship during the 12 months ending with August 1936. Their shipments could be increased about five times

in September, but could be only a little more than doubled in the month of November. Of course, the possibilities of increasing cream shipments from plants that have not yet made the attempt is limited only by prices; that is, by a comparison of returns from shipping cream and from making butter or other manufacturing operations.

TABLE 8. UTILIZATION OF SKIM MILK SOLIDS BY 24 DAIRY PLANTS IN THE CENTRAL WEST SHIPPING CREAM TO EASTERN MARKETS

Product	Number of plants		Percentage of total skim milk solids used	
	November 1935	June 1936	November 1935	June 1936
Liquid skim milk	2	3	0.5	2.6
Condensed skim milk	13	10	13.0	8.9
Dry skim milk				
Roller process	11	15	21.9	35.0
Spray process	11	12	53.4	40.5
Casein	1	3	1.2	7.5
Cottage cheese	3	3	7.3	2.8
Evaporated milk	3	2	2.7	2.7
Total	24	24	100.0	100.0

TABLE 9. QUANTITIES OF CREAM WHICH COULD BE SHIPPED TO EASTERN MARKETS BY 24 WESTERN DAIRY PLANTS AND ACTUAL SHIPMENTS, SEPTEMBER 1935 TO AUGUST 1936

Month	Actual daily shipments	Potential daily shipments
	40-quart cans	40-quart cans
September	598	2,979
October	705	2,741
November	1,112	2,596
December	1,079	2,632
January	981	2,407
February	1,059	2,496
March	1,345	2,778
April	1,079	3,256
May	1,514	4,148
June	1,176	4,528
July	1,640	4,025
August	1,145	3,119
Average	1,119	3,142

Just a word about the ownership or control of these plants. Eight of the 24 were affiliated with Borden's or National Dairy. Three others were operated by leading milk distributors of Chicago and Philadelphia. The remaining 13 were controlled locally, and of these, six were cooperative plants.

Costs of Making and Shipping Cream

The cost of cream delivered to eastern buyers includes the cost of milk and cream received at the shippers' plants less the net return for the skim milk; the cost of plant operation less the proportion properly allocated to the other products; also the expenses for icing of cars, replacement of cans, brokerage and other selling expenses, and freight. The time and funds that were available for this study did not permit us to make a detailed analysis of such

costs. We did obtain estimates by the plant proprietors and some data from their accounting records, from which we are able to give representative yields, costs, and prices.

Prices paid producers at these western plants vary widely depending upon the location, market outlet, quality of product, and other factors. At times, the prices paid at those plants having outlets for fluid milk or cream in nearby cities were much above the average. The prices for these plants are excluded from the comparisons that are made in table 10. In general, the prices paid at the

TABLE 10. PRICES PAID TO FARMERS FOR 3.5 PER CENT MILK AT WESTERN CREAM PLANTS, COMPARED WITH THE BUTTER VALUE OF MILK, AND WITH PRICES PAID PRODUCERS OF GRADE B MILK IN NEW YORK

Month and year		Price per 100 lbs. at 15 western cream plants			Butter value per 100 lbs.*	New York Grade B plants 201-210 mile zone per 100 lbs.	Amount by which the price paid at western plants fell under or exceeded	
		High	Low	Average			Butter value	New York Grade B
June	1934	$1.30	$ .98	$1.13	$1.13	$1.45	—	−$.32
	1935	1.29	.98	1.14	1.14	1.38	—	− .24
	1936	1.61	1.19	1.43	1.53	1.49	−$.10	− .06
	1937	1.60	1.22	1.44	1.41	1.32	+ .03	+ .12
November	1934	1.48	1.12	1.28	1.33	1.78	− .05	− .50
	1935	1.68	1.12	1.46	1.56	1.90	− .10	− .44
	1937	1.97	1.64	1.78	1.66	2.30	+ .12	− .52

* 4.2 times the wholesale price per pound of 92 score butter at Chicago, less 3 cents; plus 8 times the price per pound of unadvertised brands highly soluble dry skim milk in carlots, less 3½ cents.

western cream plants seem to differ but little from the net returns that could be obtained by converting the milk into butter and dry skim milk. These prices ordinarily run from 25 cents to 50 cents per 100 pounds of milk below the prices paid at Grade B milk plants in the New York milk shed. At times the difference has been much less, and in June 1937 the average of prices paid at 11 of the western cream plants actually exceeded the New York price by 12 cents per hundredweight. Fluid milk prices in New York were abnormally low during the spring and early summer of 1937.

The net cost of making cream at the western plants varied widely. When costs of plant operation were properly allocated to cream and to other products, the normal range in cost of handling and processing cream was from about $1.25 to $1.50 per can. A fair average would be $1.40 per can. This includes the icing of cars, can losses, and losses on bad accounts, but excludes freight and brokerage.

Freight rates from western cream plants to the Atlantic seaboard range from about $1.00 to $1.85 per 40-quart can in carload lots (table 11). These rates are equivalent to from 10 cents to 19 cents per 100 pounds of milk used in making the cream. Cream

prices are nearly always quoted f.o.b. the buyer's station, that is, the freight is paid by the shipper. Sizable reductions in the freight rates on cream were made during 1936 and previous years. However, no reductions of consequence have been made during 1937. Considerable quantities of cream are shipped frozen at much lower rates. The Land O'Lakes Creameries have done a considerable amount of business in plastic cream, which contains about 80 per cent of butterfat, and which is shipped at the same freight rates as butter. Neither frozen cream nor plastic cream is a complete substitute for fresh cream.

TABLE 11. CARLOT FREIGHT RATES ON FRESH CREAM IN 40-QUART CANS FROM WESTERN PLANTS TO EASTERN MARKETS, DECEMBER 1936

Point of origin	Freight rate per 40-quart can to indicated destination			
	Boston, Mass.	Newark, N. J.	Philadelphia, Pa.	Washington, D. C.
Michigan:				
Adrian	$1.115	$1.05	$ .97	$ .94
Homer	1.155	1.065	1.015	—
Ohio:				
Columbus	1.13	.97	.895	.845
Toledo	1.105	1.015	.945	.895
Indiana:				
Bluffton	1.185	1.085	1.015	.97
Shelbyville	1.25	1.115	1.04	.98
Illinois:				
Vandalia	1.375	1.26	1.195	1.155
Wisconsin:				
Fond du Lac	1.685	1.59	1.52	1.475
Cameron	1.875	1.775	1.71	1.665
Minnesota:				
Minneapolis	1.895	1.795	1.73	1.685
Missouri:				
St. Louis	1.425	1.31	1.25	1.195
Springfield	1.75	—	—	—
Kansas:				
Ottawa	1.725	—	—	—
Tennessee:				
Fayetteville	1.68	1.46	1.375	—
Texas:				
Mt. Pleasant	—	1.85	—	—

Net Returns

It has already been indicated that most of the western cream plants are equipped for flexible operations. The manner in which they utilize the butterfat and skim milk received is determined in each case by a comparison of the net returns expected from the different possibilities that are open to them. Generally these comparisons are based on rough estimates rather than upon results of careful determination of costs, yields, and probable selling prices. A method of estimating the net return per 100 pounds of milk in a typical plant where all the milk received is converted into cream for eastern shipment, and dry skim milk, is shown in table 12.

We start here with cream priced at $18 a can in the eastern markets. Out of this the western shipper has to pay freight of about $1.50 per can, brokerage of 25 cents per can, and processing expense of about $1.40 per can. The total expense therefore is

about $3.15 a can, leaving net proceeds of $14.85 a can. This is equivalent to $1.77 per 100 pounds of 4 per cent milk.

During the month of December, dry skim milk designated as "highly soluble," but not sold under well-known brands, has been priced around 6½ cents a pound delivered. The freight paid by the shipper will average about .6 cent a pound, and processing costs, including the container, about 3 cents a pound. The yield of powder from 100 pounds of 4 per cent milk is about 7.8 pounds, and this amount figured at the net proceeds of 2.9 cents a pound for the powder is equivalent to 22.6 cents per 100 pounds of 4 per cent milk. Adding together the net proceeds for cream and milk

TABLE 12. TYPICAL YIELDS, COSTS AND NET RETURNS ON DRY SKIM MILK AT WESTERN CREAM PLANTS

Item	Proceeds from 10,000 lbs. of 4% milk		Net amount on 100 pounds 4% milk
	Quantity and rate	Amount	
Cream:	*Per can*		
Gross sale value	11.9 cans @ $18.00	$214.20	$2.142
Freight	1.50	17.85	.178
Brokerage	.25	2.98	.030
Processing, ice	1.40	16.66	.167
Total expense	3.15	37.49	.375
Net proceeds	14.85	176.71	1.767
Dry skim milk:	*Per lb.*		
Gross sale value	780 lbs. @ .065	50.70	.507
Freight	.006	4.68	.047
Processing, pkg.	.030	23.40	.234
Total expense	.036	28.08	.281
Net proceeds	.029	22.62	.226
Total net proceeds		199.33	1.993

powder, we obtain a net return, in this case, of $1.99 per 100 pounds of 4 per cent milk. This represents the price which the western cream plant could afford to pay its producers on the basis of prices, yields, and costs used in this computation. The value of 3.5 per cent milk would be about 20 cents less per 100 pounds, or $1.79. The average price paid by 15 of the western plants for November (1937) milk was $1.78.

By using this method, but substituting appropriate yields and costs based on actual experience and accounting records, the management of any plant can determine with a small margin of error the probable net returns from the different uses of milk which are possible. When this is done, the management can select with greater assurance the method of disposition which will yield the greatest profit, or in the case of cooperatives, the highest return for the members' milk.

Conclusions

During the past 12 to 15 years, cream shipped from dairy plants in the mid-western states has shown a large increase in volume. It now constitutes from one-third to one-half the total cream supply

for Boston and Philadelphia. Significant quantities also are used in most cities of 50,000 or more population and in many smaller places, throughout the Northeastern States. The fluid milk bargaining associations exercise no control over this cream.

Conditions affecting the sanitary quality of cream shipped from many of the western plants have been greatly improved. In a few instances the standards of sanitation at the western cream plants compare favorably with those at Grade A plants in the eastern milk sheds. The improvement in quality is largely the result of regulations and inspection by certain municipal and state health authorities in the East.

Most of the cream shipped from the West is used in the manufacture of ice cream and cream cheese, but an increasing amount meets the more exacting requirements for use as table cream. Differences in sanitary regulations of the various inspection agencies for the eastern markets, also the insistence by some officials upon unreasonable expenditures for reconstruction of buildings and replacement of equipment, are serious problems for the shippers. Harmony in the sanitary requirements is more important in reference to western cream plants than for eastern milk plants, because the former are called upon to serve so many markets.

Freight charges on western cream have been reduced considerably, but remained unchanged during 1937. Frozen cream and plastic cream are shipped at much less cost than fresh cream, but these products have more limited outlets and sell at lower prices per pound of butterfat than fresh cream. It seems probable that fresh cream can be shipped at considerably less cost and with less deterioration in quality by the use of insulated tanks with capacity of 500 to 1,000 gallons, but suitable equipment of this kind has not been introduced as yet.

Western cream plants are complementary to the eastern milk sheds. Few of them have continuous outlets in the eastern markets for a major part of their butterfat. Likewise few, if any, eastern manufacturers or distributors depend upon western plants exclusively as sources of cream. During recent years, the net returns from cream shipped to eastern markets have not exceeded the returns from other outlets for butterfat by a sufficient margin to encourage rapid expansion of this trade. It is unlikely that western shippers will seriously depress cream prices in those markets where strict sanitary requirements are enforced. The possibility of coordinating shipments of cream from western plants more effectively with the supply and demand for cream in the eastern milk sheds is worthy of serious consideration, particularly by producers' bargaining associations.

Discussion by C. G. McBride

Ohio State University

In recent usage the term "milk control" has been applied almost exclusively to efforts to stabilize prices and regulate trade practices. Dr. Cassels points out that the first milk legislation dealt with protection of the public health and the prevention of fraud through adulteration. I would draw a still sharper line of distinction between these two types of social control. The first type can no longer be thought of as in the experimental stage. This type is now generally accepted and in most places it is conceded that the restrictions will become more stringent as people become more and more health conscious. There is a significant difference in the two types. Extreme economic depression stimulates control of prices but it tends to retard the other type. In a milk price arbitration in an Ohio city in 1931 the Health Commissioner pleaded with the dealers not to further reduce prices to farmers because his department was already finding it extremely difficult, due to low prices, to hold the farmers to the minimum sanitary standards.

The discussion to-day is directed primarily at regulation of prices and trade practices. This field was occupied by state and federal authorities because it was generally conceded that the controls previously set up were not, under the strain of economic depression, adequate to fully safeguard the interests of the public.

Dr. Cassels refers briefly to the experience with control in New York and to the emphasis placed upon the emergency aspect in the Supreme Court decision in the Nebbia case. I believe that this group would have appreciated a more detailed report on the present status in New York and New England. Ohio like New York passed an emergency act. Control there ran for two years and then at its expiration the industry went back to operation under its own power. The results were surveyed briefly in the Milk Marketing Round Table last year, and are to be found in the May issue of the Journal. It may be significant to report here that several attempts to pass new legislation have failed but that at present two markets are asking for federal agreements, Cincinnati and Toledo.

I am in complete accord with the statement that one of our present difficulties in appraising these control measures is lack of perspective. This is particularly true of those of us who have spent a part of the past five years at the controls. Dr. Cassels is in an advantageous position now to give this whole movement the type of detached analytical study that it needs.

Coming now to the heart of the paper, I raise the question whether full justice was done the dairy industry in the review of developments that led up to the present type of control. It seems to me important that we analyze more carefully the type of industry control of prices and marketing practices that grew up before government agencies moved into this field. As our city populations grew by leaps and bounds milk distributing concerns grew in size proportionately. Producers soon found it necessary to organize cooperative associations to give stability to their market outlets and gain whatever advance in prices that might accrue through bargaining power. Later labor in the plants and on delivery wagons organized so that they also might have greater bargaining power with

respect to wages. Dr. Cassels asserts that by this procedure they endowed themselves with a measure of monopoly strength. He then raises the question whether the activities of these groups, including the dealers, each with its independent policies will contribute satisfactorily to the general welfare of society. His answer is that they will not, because monopoly is the power to restrict and that therefore the tendency would be for production to be unduly curtailed. I do not believe that a thorough analysis of major milk markets in the United States from 1915 to 1930 will support this thesis.

The primary objective of producer association and milk dealer relationships was to so systematize the marketing of milk that there would be some degree of stability in the market. There followed under this set-up several years of trial and error and of give and take between dealers and organized producers. One result was the general adoption of sale on use classification, and to almost as wide an extent, the establishment of individual base and surplus or basic rating for producers. This was not consummated without some legal battles in which the issue of restraint of trade was raised. An Ohio association carried a case involving its power to collect and distribute pool balances to the state Supreme Court. The victory it won was a milestone in market stabilization.

The parties concerned in this program did not aim to have less milk appear in the market than was needed for the normal demand for fresh milk and cream. The dealers strove always to have a liberal excess over fresh milk and cream requirements because that condition tended to create a buyers' market. The biggest problem was to so control the flow and sale of the seasonal surpluses that they would not demoralize the markets. The results were marked upon seasonal receipts but of little consequence as far as total production was concerned. It is true that there are instances to be found where there were shortages for brief periods. These cases, however, grew out of peculiar combinations of such factors as the cow cycle, the weather and abnormally rapid growth of city population. They came about in spite of the efforts of the groups in the market rather than as a result of deliberate monopolistic planning.

This was the status of fluid milk marketing when the depression came. As Dr. Cassels points out it did not stand the shock of crashing prices to producers. The pressure for further social control became irresistible. The position he takes that the producer has been almost the sole recipient of the benefits and that future measures must be less narrowly committed to promoting his interests, I feel is hardly fair. I maintain that if in 1932 and 1933 when most of these controls were set up the disparity of returns had been as great against wages or dealers' margins as they were against producers prices these interests would likewise have been promoted. If wages had gone below half of what they were in 1929 or dealers' margins had been so reduced that they could not buy oats enough to feed the horses in their delivery wagons I am sure the emphasis in control measures would have reflected this distress.

I am completely in accord with the belief that we must look to the milk industry to work out a form of organization and a program of operation that will give it the highest degree of social efficiency. This industry comprising producers, workers and management can boast of a personnel of unusual ability and intelligence. It already has a long record of accom-

plishment by joint effort. The friendly spirit of team work that prevailed in the past has been somewhat disturbed by the necessity of getting adjusted to new types of social control. It will be a bad thing for everybody concerned if this jittery feeling does not soon give way to the old spirit of cooperation. This is absolutely essential to the amiable settlement of disputes which Dr. Cassels sets up as an objective.

We all agree I am sure that the practical problems of actual administration are all important. He mentions several points at which there has been friction. This was bound to happen with an undertaking so new and with everybody working under such terrific pressure. The problem of the proper exercise of authority between the state and federal agencies in interstate markets is a knotty one but it is not insurmountable. It is no more acute than in soil conservation, flood control, industrial relations and many other lines. The Agricultural Adjustment Administration has a staff of men who are well trained for the work they are assigned to do. I am certain that the difficulties of adjustment between state and federal forces will diminish in a marked degree.

It is self evident I believe that the more the emphasis in enforcement of milk control can be thrown to local courts and authorities the more likely it is to succeed. If control is a matter of state statute, simple violations should be made misdemeanors to be handled in local courts on the most simple process possible. The right of civil action by injunction is essential. When control comes from Washington it seems highly desirable that as great a burden as possible be placed upon contractual relations between the groups involved, so drawn that litigation will go into the local courts. There must be a minimum of litigation in the federal courts. It is both too slow and too costly to be useful in ordinary milk control administration.

Reference is made at one point to consumers as one of four group interests involved in problems of administration. The past history of milk control administration proves conclusively that consumer representation cannot be expected to take on the definite fighting character that will be found in the other groups. Consumers of any one food product cannot be organized as are the producers, workers, or dealers to center responsibility. The influence of the consumer in either voluntary or governmental control lies in the realization of all the other groups that the consumer as a composite whole has the last word because after all the product must be sold.

With the argument that an increase in social control of milk is ahead of us I am only partially in accord. Here is where one's definition of social control makes a great difference. I do not believe that milk is soon to be made a public utility. Control in the interests of the public health will undoubtedly be strengthened. If the governmental agency can move into more the role of a coach or umpire and less that of the policeman I am inclined to think that social control may gain in the respect of the industry and the public. I believe that the crack down type of control is on the way out.

In his concluding paragraph Dr. Cassels says that market orderliness may be attained either by highly organized groups of producers and distributors working together or by the supervision of a properly constituted governmental authority. It is his opinion that it is preferable that it be

done by the governmental authority. On this point we disagree. If there is a choice I would let the stability come from industry cooperation and impose governmental supervision only when it seems to be the only way to achieve orderliness. I am convinced that market stability that is economically and socially sound can be attained through the joint effort of the industry groups under ordinary conditions. In times of severe price maladjustments such as we had in 1930–1933 it will break down in places.

Discussion by Harry C. Trelogan

University of Minnesota

Dr. Leland Spencer has presented factual information concerning the western cream business that has long been needed by the dairy industry. Students of the competitive relationships of dairy products and practical men of affairs in dairying can use such information to advantage. Apparently the instigation for this particular study came from the milk marketing cooperatives, and it will no doubt prove beneficial to them in coordinating their price and production policies with a clearer picture of the western cream situation in mind. Unfortunately, in the past, information of this character has been used for the purpose of eliminating competition rather than for coordinating production on a sound economic basis.

We must recognize that this information is difficult to obtain which accounts for the fact that the western cream business has been a blind spot in the dairy industry. Plants shipping cream from areas west of Ohio and Pennsylvania comprise a heterogeneous and widespread group that is extremely hard to contact for a survey of this type. Although it is impossible to obtain complete, continuous and reliable data concerning them the information acquired in this study is sufficiently comprehensive to reveal several noteworthy facts.

A definite lack of uniformity among the cream shipping plants is at once evident. The tables presented show that this condition carries through the functions of purchasing, processing and selling of the product as well as through the management and ownership of the plants. The seasonality of the eastern market demands for cream forces most of these cream shipping plants to engage in alternate enterprises during some parts of the year. Since a wide variety of other enterprises is represented in the group of plants under survey this lack of standardization naturally follows. It is interesting to note that not more than half the plants produce butter and that whole milk, evaporated milk, condensed milk, ice cream mix, and cheese are all produced by these cream shippers.

Dr. Spencer's study yields further evidence that, as is generally recognized, mid-western dairy farmers have smaller dairies, but the processing plants have larger potential cream volumes. It also appears that those cream processing plants which are affiliated with national holding companies in the dairy field or with large eastern dairy companies are in the best position to get their cream accepted in the eastern markets. Relatively few western plants that have cream available are aggressive in the eastern markets. Very few have eastern sales agents and most of the independent plants rely upon brokers for their sales in eastern markets.

It seems appropriate in a study of western cream in the eastern markets

to stop and consider some of the factors affecting the location of cream producing areas. The location of the market is the greatest force influencing the production area of a bulky good, while the comparative advantage in physical production becomes a greater influence as products become more concentrated. In the dairy industry fluid milk is the bulky product that is produced close to the market and butter represents the most concentrated dairy product which is produced in areas where dairying has the comparative advantage. Cream holds an intermediate position being concentrated to about one-tenth the weight of whole milk when it is handled as 40 per cent fluid cream, yet it has about twice the weight of butter and more than twice the volume.

The relative bulk of the cream is reflected in its transportation and handling costs as they are compared with similar costs for milk or butter. Besides the factor of bulk there are several additional factors which operate to influence the location of cream production. These include: (1) perishability of the product which limits the length of time and the conditions under which cream can be stored or transported, (2) the seasonal supply of market milk which makes surplus milk available for cream in the milksheds during certain parts of the year, (3) milk surpluses in milksheds that are due to causes other than seasonal supply changes and (4) sanitary regulations and inspection requirements which tend to exclude cream produced outside the milksheds.

Improvement in transportation and refrigeration together with new methods for concentrating and preserving cream have tended to make the location of the market a smaller force influencing cream production areas. This is true because transportation costs and perishability of the cream are rendered less important as limitations to the supply area. Rising milk surpluses and more stringent sanitary regulations in the eastern markets have, on the other hand, tended to offset and counteract the effects of technical improvements. The sanitary requirements have had the most permanent and decisive effect in this respect.

There is little doubt that many western areas have a distinct comparative advantage in the production of cream. But whether the cream from these areas will go to the eastern markets or not will depend more upon the health regulations that are enforced in the future than upon any other factor. At the present time these regulations and requirements are vulnerable to attack if they are to be supported on the grounds of a purely health argument. As a matter of fact western cream has something to be said for it from a health standpoint. Western cream generally has a higher bacterial count and a greater acid content, but it comes from fully accredited dairy areas whch gives it a superior rating over eastern cream as far as tuberculosis is concerned. Greater progress in eliminating Bang's disease and mastitis has also been accomplished in western cream areas. A lower incidence of milk borne epidemics seems to indicate that the general health of the milk handlers is better. Total bacterial counts in western cream could and would be reduced if eastern cream markets were opened to such cream for fluid use. This has been demonstrated in instances where the western cream producers have been permitted to comply with reasonable inspection and quality requirements.

Existing sanitary regulations are not absolutely necessary or unadjustable. Some eastern markets have issued temporary cream permits to

western cream shippers as recently as this fall. Others permit the use of western cream in ice cream and cream cheese. There is no reason to expect the processing of ice cream or cream cheese to eliminate any more pathologic bacteria than does the adequate pasteurization of fluid cream. As they stand, many of these health regulations which include inspection requirements appear untenable. A situation exists where producers who comply with the requirements of some markets are automatically eliminated from other markets with different sets of laws ostensibly devised to accomplish the same purpose, namely, to safeguard the consumers of dairy products.

Health measures should not and need not be eliminated for a western cream business to thrive. They need to be standardized on a sound reasonable basis and the opportunity for all producers to comply with them needs to be given.

AN EVALUATION OF CROP INSURANCE POSSIBILITIES

Roy M. Green
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Crop insurance possibilities may be evaluated from two important standpoints. Crop insurance may be considered from the standpoint of the possible good it would do or the services it would render. It may also be considered from the standpoint of the possibilities of operating and administering such insurance.

As long ago as the major depression of the eighties and early nineties, a German professor of political science, P. Mayet, suggested that "Agricultural savings banks, land-credit, and agricultural insurance are organically connected and mutually support and benefit one another." He also stated that agricultural relief funds "are a protection against need but not against losses. The moneys entrusted to such funds benefit in the first place the smallest farmers; those who have more property cannot claim anything till by their losses they have been reduced to want." This sounds very much like a modern complaint against agricultural relief funds. "Insurance and savings banks," said he, "would attempt to prevent their being reduced to absolute want."

Professor G. Wright Hoffman, of the University of Pennsylvania, about 13 years ago made a rather careful evaluation of crop insurance possibilities in an article in *The Annals of the American Academy of Political and Social Science*. He suggested consideration of crop insurance as "a proposal which promises to be an improvement with both permanent and far-reaching results."

As recently as October 1936, the National Industrial Conference Board in a critical evaluation of crop insurance possibilities concluded among other things that "there unquestionably is some justification in attempting to provide the farmer with a measure of insurance against crop failures so serious as to make it impossible for him to continue operating his farm."

Examples might be multiplied but in general, where there has been real study of the problem, differences in conclusions have arisen more over who is to operate and administer such insurance, and whether it can be successfully operated and administered, rather than with respect to its serviceability. There is, therefore, a large measure of agreement on crop insurance as an economic policy or principle.

Crop insurance has been considered as organically connected with farm credit and as something that would support and benefit

it. One large agricultural service, reporting in recent years to one of its clients, a large lender on agricultural properties, said "Many, otherwise prompt paying, have defaulted in individual years due to loss caused by devastating hazards. The repeated visitation of hail or successive years of insect damage have often weakened the finances of individual borrowers, causing losses on farm loans which originally had a substantial margin of security."

Simultaneously, as a social measure, crop insurance has been considered as a protection that tends to reduce the number of border-line farmers who, because of unavoidable losses, may otherwise tumble down into the class that must have protection against want. Socially, crop insurance is a kind of preventive measure rather than a relief measure.

Crop insurance, through the stronger medium of a joint reserve, accomplishes what any prudent farmer does who can, when he carries something in reserve against adverse crop conditions. Though varying in importance by areas, the need for some protection against crop hazards is common to all areas. Reporting in the *Journal of the American Society of Agronomy* (September 1937) on studies at the Illinois Experiment Station on "The Effect of Soil Treatment in Stabilizing Yields of Winter Wheat," Miller and Bauer, stated, "Occasional wheat failures or near failures occurred even on the most productive soils and under approved farming methods."

Crop insurance, in giving the farmer a joint reserve stronger than an individual reserve to fall back on, leaves him free to follow a more conservative course in drawing upon the resources of his soil. Crop insurance thus would supplement a program of soil conservation.

In view of the wide acceptance of crop insurance in principle, it seems unnecessary to discuss further that phase of the subject. It will perhaps be most profitable from this point to the close of the discussion to examine briefly the possibilities of operating and administering crop insurance.

Professor Hoffman in his review of crop insurance in 1925, referred to the Congressional hearings on crop insurance held in 1923. With regard to them he said, "The testimony of insurance experts and others brought out especially the fact that, to be successful, crop insurance, covering our major crops, must be based upon much more detailed data than we now have and must be nation-wide in scope."

Nation-wide data on individual crops and on individual farms, nation-wide operation, and therefore a problem of nation-wide

administration of any plan adopted, are the initial hurdles indicated as necessary ones to make.

There have been several important experiments in the United States with so-called all-risk crop insurance since 1899. All of these were conducted by private insurance companies. They all cost the experimenters rather heavily. Failures were due to several causes. Chief of these were:

1. Insurance of price as well as crop outturn.
2. Lack of data detailed enough to measure adequately the risks involved in insuring individual producers.
3. The expensiveness of administrative machinery, particularly that part of it necessary to make local contacts with individual farmers.
4. Moral hazards involved where local contacts were inadequate.
5. A relatively wide zoning of rates that encouraged the taking of insurance by the higher risks and discouraged the lower risks.
6. Lack of sufficient capital to protect the insurance issued and continue it, in case the first few years, before reserves were built up, were poor crop years.

Compared with 15 years ago when crop insurance was getting a public hearing, and with the times when the private experiments were undertaken, there is available today for certain crops a larger volume of production data on individual farms with which to measure risks.

The data collected through the Agricultural Adjustment programs now cover a 6- to 7-year period in the case of a few crops. The data are not all equally valuable. Most of them require a great deal of working over and checking, farm by farm and county by county. This in itself limits the rate at which reasonably dependable actuarial bases of insurance can be set up for various crops. For some crops there is as yet no adequate supply of detailed data. For no crops are there sufficient detailed data of the kind to permit insurance of quality as well as quantity on a wide scale.

Yield data for individual farms used in rate-making in the case of wheat can be combined into county averages, and these averages compared with the county averages as estimated for the same period by the Division of Crop and Livestock Estimates. In the case of wheat, the Division of Crop and Livestock Estimates has more information with which to check estimates than they have in the case of a number of crops. They collect data on railroad movement and receipts of wheat at elevators for this purpose. Except perhaps the case of cotton, the data on a county basis for many other crops are much less satisfactory. Even in the case

of cotton the Agricultural Adjustment Administration data will take much more working over than did the wheat data.

The most that can be said is that data now available for a few crops give some promise of making it possible to adjust rates closer to the hazards involved, than has been possible in the past. An example of the detailed rate pattern made possible for wheat is that worked out in the United States Department of Agriculture, using 1930 to 1935 individual-farm data and adjusting to a 10-year base, 1926–35, on the basis of county-average data furnished by the Division of Crop and Livestock Estimates.

The importance of having premium rates broken down to at least a county average rate can be illustrated by the case of four Missouri counties.

Starting north of the Missouri River where it empties into the Mississippi and moving westward, the counties in order are St. Charles, Warren, Montgomery, and Callaway. For a coverage of 75 per cent of average yields the average county premium rates for wheat in per cent of average yields are as follows:

Callaway County	Montgomery County	Warren County	St. Charles County
5.8 per cent	7.3 per cent	8.2 per cent	8.5 per cents

The question immediately raised by those knowing the territory is how you get a higher rate for St. Charles County than for Callaway County. Attention is immediately called to the fact that from a soil standpoint St. Charles is the better county. Examination of data indicates that an important cause of the higher rate in St. Charles County is the large drop in yield in 1928 due to winter-killing. Yields in the four counties that year were:

	Callaway County	Montgomery County	Warren County	St. Charles County
Per acre	9 bushels	6 bushels	4 bushels	3 bushels
Deviation below 1926–35 average	3 bushels	5½ bushels	8½ bushels	11½ bushels

The counties arching over into Illinois, as it were, generally showed this greater loss from winter-killing. The situation in the Ohio River basin and across the States of Ohio, Indiana, and Illinois is shown in the percentage of seeded acreage that was harvested in that year.

	Kansas	Missouri	Illinois	Indiana	Ohio
Percentage	83	68	38	40	36

A somewhat similar situation occurred in 1912 as indicated by percentage of seeded acreage that was harvested.

	Kansas	Missouri	Illinois	Indiana	Ohio
Percentage	82	77	47	53	55

This represents an occasional risk of a catastrophe nature that cannot be safely ignored in the rate structure of the area.

County-average rates of this kind and the continued collection of yield data under the Agricultural Adjustment program make it possible to give the individual farm a rating based partly on individual experience and partly on the collective experience of all farmers in the county in which the farm is located.

Such a schedule rate, in contrast to a classification or zone rate, will minimize the tendency toward loading up with the highest risks.

For farms without yield records, the county-average rate, modified by appraisal, can be applied with a coverage determined from an appraised average yield, made after the manner of loan appraisals.

There has been built up in recent years, in the administration of the several agricultural programs, effective means of contacting local farmers through state and county committees and association of farmers. This furnishes the nucleus of nation-wide administrative machinery for experimenting with the possibilities of crop insurance under more favorable conditions for adequate rate determination than has been the case in the past.

Field administration largely through the existing set-up would mean only additional costs rather than the cost of setting up an entirely new organization. The state and local committees concerned with administering crop insurance locally have had, for the most part, about 4 years' experience with similar administrative work. The local offices already have farm maps, records of yields, and township contacts through which to work.

Such experimentation with one or a few crops could determine more definitely than is now known, to what extent administrative expenses could be loaded onto loss-cost rates, to what extent the moral hazard could be reduced, what capital requirements would be over a period of years, and consequently the extent to which different agencies might care to render such service.

In considering the possibilities of wheat crop insurance, the rate structure presented no doubt suggests to you the question of what about the possibilities in extremely high-risk areas and extremely low-risk areas. Will wheat growers in these areas buy such insurance?

In the high-risk areas, payments of losses would come close together but the premium rates necessary to secure them leave but

a small net return. In the lowest-risk areas, the premium is attractively small but the pay-off periods are so far apart that they are hard to remember until the next time the hazard strikes. It would seem that the greatest possibilities lie in intermediate areas.

It is evident from this brief survey of possibilities that if crop insurance is to be kept on a reasonably sound actuarial basis, its development must of necessity be slow. In the beginning, at least, it must be confined to insurance of quantity.

In general, the long-time nature of the program, the slowness with which its ultimate economic effects make themselves felt, the cost to the farmer, and the indirectness of its contribution to price stability are deterrents to intense public interest in its development.

The certain narrow margins of profit with administrative expenses added to loss-cost rates, large capital and reserve requirements, and its consequent possible importance only as a side line to other insurance, deter private enterprise from energetically entering the field. Similar considerations have made crop insurance not a particularly attractive field for farmers' mutual insurance companies, although some degree of cooperation on the part of growers appears to be an important element in any plan of crop insurance that is to succeed.

It is probable, therefore, that developments in crop insurance will be slow. In the long run, this will be of decided advantage to a program, involving so many of the elements of a business enterprise that needs time to grow soundly. Only if the development can be somewhat as outlined, is there any considerable possibility of operating and administering crop insurance successfully.

Fully aware of the difficulties involved, the President's Committee on Crop Insurance, reporting in December 1936, recommended that a publicly sponsored experiment in crop insurance first be conducted with the single crop, wheat. The President, in his message to Congress, in February 1937, said, "I believe that legislation should authorize application of similar programs to other commodities when it is established that producers desire them and application of the plan to wheat has provided a backlog of experience in applying the principles of crop insurance."

The Federal Government has thus indicated a desire to proceed cautiously with crop insurance. It has recommended beginning with a crop that in many respects is most suitable for such an initial trial.

Large acreages of wheat the world over are grown in semi-arid

areas. The very climatic conditions conducive to the production of highest quality milling wheat make for highly fluctuating yields in important wheat-producing areas. Wheat crops in the more humid areas have their markets affected by these fluctuating supplies. Wheat, once the crop is sown, is less affected by the human element in cultivation and tillage than are row crops. Wheat is a crop used largely for food. It is always subjected to governmental price control in times of threatened public danger. Governments, therefore, from time to time have already assumed that the crop is vested with considerable public interest aside from that of the growers. A large proportion of the wheat crop is consumed domestically, and the high milling quality portion of it, almost entirely so.

It seems to be present public policy, therefore, that if crop insurance is to be undertaken at all as a part of the agricultural program of the Government, it will start with a single crop where conditions are favorable for the experiment, and develop gradually.

Discussion by Harold B. Rowe

Brookings Institution

On the whole I have little reason to differ with the conservative position which Mr. Green has taken regarding the possibilities of crop insurance. I find, however, that his discussion has suggested certain issues relating to this proposal without having raised them specifically. Consequently in my remarks I should like to focus attention upon a few points relating to two issues which may have considerable significance to any experiment that the Federal Government undertakes in this field. For the most part my views on these are not inconsistent with Mr. Green's evaluation, although I am not certain he would agree on all points.

The first of these issues relates to the measure of government aid which is contemplated. That is, should the undertaking be limited to insurance of yields, with rates established on a thoroughgoing actuarial basis and high enough not only to cover losses sustained over a long period of both good and bad years, but also to cover expenses incident to administration of the plan? Or should rates be somewhat lower than this, at least in the areas of greatest risk, so that the plan would incorporate a measure of governmental aid or relief for farmers who suffer recurrent losses because of low yields?

By emphasizing the importance of adjusting rates to the narrowest possible zones of hazard, Mr. Green has made clear that he is not considering any plan which would tend to favor one area—or even individual farm—in relation to others. With this I fully agree. Any pooling of risks through a uniform rate for any appreciable zone of hazard would offer an effective subsidy to farms with high risks, and correspondingly penalize those normally subject to smaller risks—unless, of course, they stayed out of the program as Mr. Green has suggested they would do, in which case the burden would be upon the public treasury. Such an outcome

would seem to me to be wholly undesirable, if for no other reason than the support it would give to continued production in areas which are submarginal because of their extreme hazards.

With respect to the level of premium rates, however, Mr. Green has left an opening for a considerable public subsidy when he stated that experiments could determine the extent to which administrative expenses could be loaded on loss-cost rates. In this he implies that if necessary the full expenses of administration might be borne by the government. Moreover, it is my impression that many advocates of current crop insurance proposals favor this degree of subsidy, and that political representatives of at least some areas in which risks are normally high, envision a plan under which their constituents would be remimbursed for the losses sustained, but would be required to pay only moderate premiums.

For my own part I question the desirability of any crop insurance plan which incorporates a permanent subsidy or relief element, even to the extent of covering expenses of administration. Of course if an experiment is to be undertaken the initiative must come from the Federal Government and this means that it must bear the burden of all such preliminary work as building up data and developing rate bases. Beyond this it would seem proper for the government to cover losses such as might result from mistakes in rate determination during the early period of operation, and to provide the initial capital required until sufficient reserves can be built up. But the plan should be self-supporting in the long run if it is worth while. Only when this requirement is included, do I think there is the complete acceptance of the principle of crop insurance which Mr. Green has indicated.

Incidentally, when so restricted, it is probable that crop insurance not only would not be a relief measure but would not constitute a significant preventive measure tending to reduce the number who tumbled into the relief class as Mr. Green argues. Only in the cases where this "tumble" would result from the timing of the loss would it be prevented by true insurance.

The second issue to which I attach a major importance is only vaguely suggested. It pertains to the relation of the proposed experiment to other elements in our federal program for agriculture. Thus current proposals contemplate the use of existing conservation committees and associations for administering crop insurance. As Mr. Green has indicated, this would facilitate inauguration of the experiment and permit economies in operation. But may there not be disadvantages in linking the administration of crop insurance so closely to another program having objectives of a quite different character? For example can we safely assume that such administrative agencies will be permanently available, and if so that their administration of the insurance program would not be affected adversely by considerations arising out of their other work?

Mr. Green has not directly indicated any close connection between this experiment and other projects. But at certain points his statement suggests at least the possibility of a rather close tie-up. For instance, in support of the general plan he points out that it would supplement the soil conservation program in a desirable manner, and mentions as one of the reasons for lack of intense public interest "the indirectness of its contribution to price stability." From such references it is easy to call to

mind proposals that have been made for conditioning a farmer's eligibility for insurance upon his participation in conservation or adjustment programs, and for linking crop insurance with the operation of an ever-normal granary.

Without going into an extended discussion of such proposals I wish merely to state my own view in relation to the issue raised. Briefly this is that crop insurance offers a promising field for cautious experiment by the Federal Government. Because of the economies involved it is desirable to utilize existing agencies of the Agricultural Adjustment Administration in the operation of this experiment. Beyond this, however, there is little to be gained by linking the programs more closely together. There are enough problems to be solved and obstacles to be surmounted to make the outcome of the experiment uncertain at best, without handicapping it with any further difficulties which might result from an attempt to tie it into the programs of soil conservation and price stabilization.

LAND USE IN THE NORTHEAST[1]

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In the consideration of land use in the Northeast, one cannot but be impressed by the important influence which populous industrial centers have upon nearby rural areas. As a result, it is convenient to classify the Northeastern rural areas on the basis of their relative proximity to metropolitan centers. Thus we speak on the one hand of the non-industrial area, which includes the back hill country of Northern New England, Northeastern and Southern New York, and parts of Pennsylvania and Maryland. On the other hand, there is the heavily populated belt near the coast from Southern Maine to Washington. Obviously, a classification of the entire Northeast into two homogeneous parts is impossible, yet such a division is useful in focusing attention on two important categories of land use problems.

The Non-Industrial Area

This discussion applies chiefly to the less productive hilly sections which characterize the interior of the Northeastern States, excluding the scattered areas where a relatively successful commercial agriculture has been developed.

The outstanding problems arise from a downward secular trend in agricultural productivity and population. These areas reached their population peak decades ago when most of this territory was quite fully developed on the basis of a largely self-sufficient agriculture or local rural industry, or both. The economic decline which has since taken place with the development of farming in better Western lands under a machine agriculture has left an outward structure of social and economic institutions which no longer has a productive economic base. The abandonment of locations has usually happened in such a manner as to leave scattered isolated habitations requiring large expense in maintenance of school and road services.

As Professor Woodworth indicated, "Here many of the local people have been held in the community by opportunities in the

[1] A summary of a round-table at the annual meeting of the American Farm Economic Association, Atlantic City, December 29, 1937. This report includes excerpts from both the open discussion and the formal papers which were presented by Professor H. C. Woodworth of the University of New Hampshire, Dr. A. T. M. Lee, New Jersey Land Use Planning Specialist, Mr. V. L. Hurlburt, Pennsylvania Land Use Planning Specialist, and Mr. Salter.

timber operations, and with the lessening of this local work have in many instances drifted into employment and ways of life that are not socially productive. The few families of stranded people in control of the small local town government are able to collect enough tax revenue from non-resident land owners to provide some employment on public services. The tragic need for immediate income outweighs consideration of efficiency in public administration. The people, local government, and land resources become completely out of adjustment with each other and the consequences trail into serious social economic problems. A vicious downward spiral of inefficient public services, high taxes, lower valuations, is created. This leads toward reduction of land resources and lower living content of the people."

The expedient, though probably ill-advised, solution has been that of increased state-aids and subsidies which, by increasing the local wages fund, aggravates the problems and prevents desirable adjustments.

There are in these back areas indications of recent settlement for retirement or subsistence residence or for summer home or other recreational uses. Professor Woodworth stated that "the small farms with little value in commercial agriculture become the haven for many families without large earning capacity. Some farms become the focal point of such business enterprises as lumber operations, antique trading, car repairing, specialized sales agencies, and public office. Other sites are converted into summer homes and these may afford markets for local products as well as employment to local farmers. The rural community becomes urban in many characteristics. To a large extent in these areas land as a production factor in a commercial agriculture has been outweighed and superseded by the demand for land as a consumption good or a production good for certain intangible things that are difficult to describe or to measure. A plot of land in the hill country with a small white house satisfies the longings and inner desires of certain people. Perhaps it is the feeling of security or of space. The charm of a particular setting may be the end-product of life itself for certain struggling nerve-wrought people. In the Midwest, retirement to the village has been the life goal of the rural family. In New England we have this in reverse.

"These uses may represent a better utilization of the particular land than commercial agriculture, and on the whole should be encouraged. But since there are more potential sites for these non-agricultural uses in New England than will be needed for many years, the problem becomes one of directing these activities into

areas that not only are well adapted to the particular use but into communities that are likely to survive and intersperse them among commercial farms or other occupied places where they will supplement the structure of local government, and assist in placing the services of schools and roads on an efficient basis." There is real danger that in many areas high taxes will prevent the development of non-agricultural land uses which might otherwise be of substantial benefit to the community.

Corrections of these maladjustments may involve land classification, rural zoning, public purchase, or more fully-rounded programs of land use readjustment. Each of these proposals has its difficulties and all of them require considerable educational work.

Land classification alone may be applied on the theory that farmers or farm buyers will be guided in their decisions by the classification map. Experience shows instances, however, in which this procedure has failed to prevent maladjustments. "To merely indicate that certain poor land areas should be devoted to timber production," Professor Woodworth stated, "does very little toward solving the difficult social problem. A realistic approach must go further."

Land classification may be more effective if combined with road and electrification planning and with a state land purchase program. In such a case, the state may stand ready to buy lands offered at a certain nominal figure. In New York, about 400,000 acres has been so purchased. It is not likely that owners will let their lands go tax delinquent if there is a possibility of selling to the state.

Yet, particularly if public land acquisition is scattered, more problems may be created than solved. This has occurred in several instances in various Northeastern States. The problem is further accentuated when the local government unit is as small as the town or township. Likewise, if residents in the purchase areas are given life-time leases, the worst problems may not have been solved.

The combination of rural zoning with a public acquisition program may reduce the expense of the latter and the two approaches may produce a more effective result than either alone. However, even zoning may result in serious problems of public finance for local towns. A major consideration of all programs should be that of preventing unwise settlement from jeopardizing the local public finance situation. The possibilities of allowing seasonal residence have not been given sufficient attention. This procedure

might protect the town against an unjustifiable drain on public funds while allowing tax revenue producing uses.

An even broader land use program might envisage the elimination of whole local government units which have no economic justification. At least in some areas, a well-rounded program might require relocation of people, redrawing of local government boundaries, public ownership of timber resources or public control over private timber management. Such policies as these require courage in scrapping of the outmoded, but, in the words of Professor Woodworth, they should be based "on a deep sympathy for the best interests of local people and a fair and encouraging attitude toward the owners of timberland."

The Industrial Area

The outstanding problems in the industrial areas are occasioned by a change in the land use pattern from purely rural to primarily urban land use. Continuous quantitative increases in lands held by urban people bring about qualitative changes in the character, institutions, and economy of rural towns. The pattern of use of rural lands close to cities is extremely important because of the numbers of people whose interests are directly affected and the aggregate real estate values involved. Yet this is an aspect of land use planning which has received relatively little attention. The problems encountered are termed "rurban" and they are characterized by the variety of alternative and competing land uses.

Changes in land use are particularly notable where the competition is keen between commercial farming and non-agricultural uses. In many of the river valleys in the industrial areas, commercial farming is encouraged by good soil, and proximity to direct consumer outlets. On the other hand, the expanding metropolitan areas require increasing amounts of land for residential, industrial, commercial, recreational, and water supply purposes.

The development of rural land for residential purposes usually takes place without regard to soil productivity factors: site, location, and social facilities are most important. The character of this process depends largely upon the type of real estate development through which it occurs. In the least productive areas, comparatively cheap land may attract destitute settlers. Whether or not these newcomers have any interest in the productive qualities of the land itself, their settlement may impair the improvement of local government services and localize rural poverty.

The factor of soil productivity causes significant problems in the sale of rural land for full-time or part-time farming purposes. Large

numbers of city people, many of whom are foreigners, and many of whom are farm-reared, have a desire to own farms. They constitute a constant supply of potential purchasers who can be exploited in sales of places as farms that can never return a decent living from agriculture.

One of the most important land use problem areas in the Northeast is found in the southern third of New Jersey. Here the essential problem is the excessive and unsound subdivision of land. Known as the Pine Area of South Jersey, this area comprises nearly 1,200,000 acres of poor land which has no productive use. The close proximity of this large area of easily accessible, unproductive and low value land to the huge metropolitan centers of Philadelphia and New York, with their thousands of prospective buyers, has made gross misuse of it possible.

Dr. A. T. M. Lee described this area as "not suited to agriculture; it is submarginal for forestry under present ownership and management; it is not suited to urban development; it is ill-adapted for part-time farming and commuters' homes; it does not lend itself to summer homes and country estates, except to people with certain individual tastes, or those who merely want to get away from the city; and most of it cannot be used for watersheds or intensive recreational sites.

"A special category is needed to describe the use which has been made of this pine land. Since the time of the Civil War it has been used as something to be sold, to raise money on fictitious collateral, to induce city people to waste time, money, and effort at farming land unsuited to agriculture. The Pine Area has been and is now a haven for the unscrupulous promoters who buy up this land, plot it into streets and blocks, and sell small lots or small farm plots to uninformed and unsuspecting city buyers. The buyers are familiar with real estate values in the city but know nothing about the actual value of the rural pine lands nor its potentiality for agriculture or other uses. They therefore think they are getting a bargain."

These unsound land development schemes inevitably result in tax delinquency, a false tax base, and high indebtedness for the local municipality, while the pattern of land ownership is put in hopeless confusion. Dr. Lee indicated that "there are adequate laws on the statute books for the *future* control and development of land use in any municipality in the state. New Jersey is a highly urban state and it is natural that the laws which have been enacted were intended primarily for urban municipalities. Where the damage has already been done, we must look to a correction of the

present problems before any sound constructive work can be done for the future. Corrective laws must be enacted before the present planning laws can be used with any beneficial results. It seems, therefore, that it will be necessary to enact a series of laws and adopt a long time policy of public ownership of land and state control of the development and settlement of land in order to correct the existing evils resulting from the excessive and unsound subdivision of land."

Special land use problems occur in the industrial areas of the Northeast depending upon the characteristics of the new particular land use being introduced. Recreational assets will be intensively exploited in certain rural areas near cities. Whether or not these areas are otherwise suited for agriculture has little influence on shifts to recreational use. Requisites for a city reservoir can be satisfied only by particular locations. These same locations, however, often meet the requirements for numerous other uses. Inter-city highways, designed without reference to the rural areas through which they pass, may bring about important land use changes in those areas, particularly for commercial or industrial purposes.

To meet the land use problems in such areas as the industrial Northeast, we need to know something of the trends in the demands for recreational and other consumptive uses of land associated with cities of various sizes. It may well be said that this situation in "rurban" or "twilight" areas forms a new frontier for the development of land use research, planning, and control techniques. New techniques are needed to evaluate the competing uses for land in such areas and to determine what constitutes a desirable pattern for such combined uses. As new land uses for residence, part-time farming, recreation, and water supply become important in the rural areas of the Northeastern industrial areas, the whole social character and economic organization of the rural towns are affected. If zoning is employed, the zones must be in different terms from those now used in either urban or rural areas.

A program of public purchase in areas near the cities of the Northeast may be a very expensive procedure. However, if we are to have recreational areas accessible to low-income urban families, sites for public purchase must satisfy these requirements whether or not agriculture is submarginal and land values are low.

Education

In any type of land use planning work, education is extremely important. Not only is educational work essential to securing the

proper land use planning tools, for some problems cannot be solved until certain existing laws are modified or new ones passed, but also education must accompany the application of the program. Proposals for rural zoning ordinances will meet with greater success if the idea germinates within the locality concerned. An educational program is needed not only "for the enlightenment of people who might eventually live under rural zoning ordinances," as Mr. V. L. Hurlburt stated, "but for the instruction of other research and educational personnel as to the purposes and possibilities of planning and zoning." This latter type of education is important if existing agencies are to cooperate in a land use adjustment program.

The AAA County Program Planning represents a new type of approach to the problem through discussion groups. In general publicity, research results must be presented so the layman can understand and use them. A difficulty is the frequent reference to even the most democratic planning as "un-American." It was felt that a realistic approach to the need for planning would appeal to the self-interest of the people affected. Educational channels most frequently used in connection with land use planning do not as a rule reach part-time or subsistence farmers. Mr. Hurlburt suggested that "the approach to a solution of the problems of land use through county planning and zoning is, in essence, a combination of the research, education, and action programs, in one. A program of education must be carried on before any county will attempt to make use of the enabling legislation. Once such an attempt is made, research must furnish the data for the formulation of the plan to be adopted. Once the plan is adopted, an action program is in effect."

ROUND TABLE: CAN LAND BOOMS BE AVOIDED?

1. LAND BOOMS AND SECOND MORTGAGES

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Land booms are not avoided through conservative loans by first mortgage lenders. Booms are financed, in the main, not by such first mortgage agencies as insurance companies and the federal land banks, but by second mortgage lenders, principally by private individuals, former land owners, and others speculating in land.

There is no mystery about the process. Smith, after holding a farm for a short time, sells it to Jones at a substantial profit. In payment Smith receives a small down payment in cash and a second mortgage; Jones takes over the farm subject to the first mortgage, an obligation which rides through one sale after another without being disturbed. Smith's willingness to take a second mortgage as part payment is the oil which makes the boom slip along so smoothly.

The minor part played by first mortgage lenders is illustrated by the figures in table 1, a cross section of the actual conditions in an Iowa county where the land boom was unusually active. From 1900 to the top of the boom insurance companies loaned conservatively. As land went up in price year after year during this period, insurance companies continued to keep their advances down to a percentage averaging about one-third of current value. When the boom was at its peak, only 29 per cent of the sale price was being loaned. This meant that on the average over 70 per cent of the sale price had to be financed by junior mortgages and cash. But this was no handicap in the 1920 boom because of the ease with which sales were financed with junior mortgages. According to the table, the amount of junior mortgages in 1920 represented one-third of all mortgage dollars loaned in that year in contrast to a much lower percentage in other years.

Another slant on boom financing is the assistance of former land owners the "Smiths" in the example described earlier. In the table are figures giving the number of individuals who took back a mortgage as part payment in the sale of their farm. Some of these former owner mortgages are large first mortgages. Others are second or even third mortgages. That as a group they were a factor in the 1920 boom financing is evident from table 1.

TABLE 1. MORTGAGE DATA ILLUSTRATING LAND BOOM CONDITIONS, STORY COUNTY, IOWA

Year	Sale price of farm land per acre	Average amount loaned by insurance companies on first mortgages per acre	Insurance company loans as percentage of sale price	Junior mortgages as percentage of all mortgages	Number of former owner mortgages
Pre-Boom					
1900	$ 48	$16	33	16	31
1905	74	28	38	17	12
1910	109	38	35	15	32
1915	170	50	29	21	45
Boom					
1920	289	84	29	32	179
Post-Boom					
1925	150	77	51	19	8
1930	143	70	49	16	16

2. LAND BOOMS AND THE MORTGAGE RATE OF INTEREST

A. A. Dowell
University of Minnesota

Since the mortgage rate of interest plays an important part in establishing land values, the question naturally arises as to whether land booms might not be avoided through adjustment of the interest rate. This, in turn, raises two pertinent questions. First, would adjustments in the interest rate actually prevent land booms? Second, if it is found that land booms could be avoided by adjusting the rate, could such adjustments be made under conditions as they exist in this country?

If net incomes could be prevented from fluctuating greatly, either through stabilization of the business cycle or through some system of taxation; there would appear to be some ground for the belief that fluctuations in the sale value of farm lands could be reduced through adjustment of the mortgage rate of interest. It does not appear that the technique of controlling the business cycle has as yet been developed to a point where it can be expected to prevent the recurrence of business cycles in the near future. Regardless of whether the difficulty is due to lack of proper technique, or failure of execution, the result is the same insofar as it applies to the land value problem. During periods of rapidly rising product prices, such as prevailed in this country during and immediately following the Great War, a fairly substantial increase in the mortgage rate of interest failed to dampen the enthusiasm for land. Advancing product prices with the expectation that future incomes would continue to rise, was the principal factor in the rapid rise in land values. An increase in the mortgage rate of interest to five, five and one-half, or six per cent apparently had little effect on land values at the time. If rates had been stepped up rapidly and to a much higher level, the result might have been quite different, insofar as the demand for new loans was concerned. Long term loans, in force at the time, would, of course, not have been affected.

Since it does not appear likely that business cycles will be controlled in the near future, and since substantial advances in the mortgage rate of interest have not, in the past, served to dampen the enthusiasm of purchasers of farm land during the upswing of major business cycles, it is not likely that adjustments in the mortgage rate of interest will prevent land booms during such periods. The only practical remedy would appear to lie in the direction of preventing the business boom from occurring, and thus checking the advance in net incomes obtained from the land.

Although an advance in the mortgage rate has not prevented land booms from occurring in the past during the upswing of violent business cycles, it does not follow that land values are not influenced by the interest rate. As generally recognized, land values are a direct reflection of actual or anticipated net incomes discounted at the mortgage rate of interest. Even though a substantial rise in the rate may not prevent a land boom in the short run, a fairly modest change in the rate does have a very direct bearing on land values in the long run. Hence, during more normal times and in the long run, adjustment of the mortgage rate of interest should be much more effective. However, to be fully effective the adjustment should apply to existing loans as well as to the new loans, and

a fluctuating rate of interest either on short or long term loans would be a radical change in farm mortgage procedure in this country. This raises the question as to whether such a policy is desirable or practical in this country.

If a policy of stabilizing land values through adjustment of the mortgage rate of interest should be adopted, it follows that this would mean breaking away from the market rate. In the past the aim has been to supply farm mortgage credit at market rates, and allow land values to seek a level based upon net incomes discounted and capitalized at the market rate. Thus we have had both fluctuating interest rates and fluctuating land values. With the stabilization of land values as the goal, variations would be reduced to variations in the interest rate. Does this appear to be practical in the United States?

At the present time the Farm Credit Administration is the most important single holder of farm mortgage credit in this country. Though the object in establishing the original Federal Land Bank system was to supply funds to land owners at the lowest possible market rate including cost of operation, we have, for sometime witnessed the pressure, each year, to reduce the rate below the market. It has been suggested that the reduced rate has served as a type of Agricultural Relief during the recent depression, but this overlooks the fact that it is a subsidy, not to farmers in general but to Farm Credit Administration clients only. Furthermore, it was not based upon need, for it applied to individuals with modest loans as well as those with excessive loans, and to favored and distressed areas alike. The reduced rate naturally makes a strong appeal to all borrowers, and was perhaps necessary in certain distressed areas, but it carries with it the seeds of inflation, which if continued, will place the burden of current benefits on the shoulders of subsequent purchasers. In the long run, the land debt problem will not be solved through a subsidized interest rate. Rather, it will be aggravated. There is very real danger that the Congress will succum to pressure to maintain artificially low rates and thus actually be responsible for initiating a land boom, or at least permitting land values to advance above the level that can be maintained by subsequent purchasers. The result might well be to increase the number of farm tenants more rapidly than the newly enacted Farm Tenancy Bill can place present tenants in the farm-owner class.

Since public pressure on the Congress has been responsible for maintaining mortgage rates below the market rate, it does not appear likely that a policy aimed at checking a rise in land values by raising the interest rate above the market rate would be practical in this country at this time.

Thus, we conclude that land booms which accompany the upswing of major business cycles can not be controlled through adjustment of the mortgage rate of interest. During more normal times it would seem that land values could be stabilized, to some extent at least, by adjusting the mortgage rate. However, this would mean breaking away from the market rate, and it is doubtful whether public opinion would support a policy aimed at maintaining a rate above that prevailing in the market with the object in view of preventing a rise in land values. If this conclusion is correct, it follows that, until such time as we develop the proper technique or the will to execute known techniques, land booms will not be avoided through adjustment of the mortgage rate of interest.

3. CONDITIONS CHARACTERISTIC OF LAND BOOMS

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Farm Mortgage Conference

So far as I can discover, a land boom has never been exactly defined. The idea implies a very unusual degree of activity in the market, and of course, rapidly rising values. Values rise to an unreasonable level, a level that cannot be supported subsequently, and thus boom and collapse are associated. Some writers hold the view that booms operate in restricted areas, and perhaps generally speaking, this is true. But there have been occasions where land booms have affected large areas; the farm land boom of the immediate post-war period certainly extended to a large area although there were varying degrees of activity in the farm real estate market. Likewise widespread land booms occurred in 1832–36 and again around 1854–57. At just what point these movements ceased to be a natural adjustment of land values to some underlying economic condition and became land booms is a matter of definition. These broad manifestations have their roots in such forces as war, inflation, population growth and movement, and technological improvements, and therefore the question of whether they can be "avoided" is not the exclusive concern of the agricultural economist. It is my purpose to call to your attention certain characteristics of land booms.

It is customary to define land values in terms of the present worth of a flow of future income, which is to say that land value is the result of the two variables; income and the capitalization or interest rate. In the experience that followed the World War, it was observed that land values clearly rose above all reasonable relation to capitalized income, and therefore it was concluded that there was a tendency to add to current values the increases expected in the future—in other words, to capitalize a trend. Since this can occur only under pressure of strong demand, we could define the boom stage as beginning at the point at which this process starts. The boom is the outgrowth of some favorable condition and usually one that has already become visible in the form of an upward trend in values. Thus a rational basis, whether real or imaginary, is established for the belief that values will continue to rise. In the last large-scale boom this process of rationalization centered around the idea that the supply of public lands was exhausted and the demand for the products of the land, as represented by a growing population, was sure to expand. In 1914 a writer in the *Atlantic Monthly* said in explanation of higher values, "the supply of good farm land in the United States is now limited, whereas the demand is unlimited." There was a common saying, "God was not making any more land," but it was not realized that the population was being curtailed. The Florida land boom which many of us think of as having developed overnight, was nevertheless preceded by a long period of fairly rapid growth and development in that state. The psychological basis in this case was the unquestionable climatic and agricultural resources together with a location that was becoming yearly more accessible as transportation improved. This was merchandized in much more inspiring language as the playground of America.

Likewise the various booms which occurred from 75 to 100 years ago closely followed historical developments which could be favorably inter-

preted. In the east about 100 years ago there was a great boom in Maine timber lands, inspired by the belief that accessible timber was fast being exhausted and that prices would continue to appreciate. At the same time there was a great speculation in town lots and farm lands of the west, which rested upon the rapid westward expansion of population. In 1836 (just as a roaring boom was about to collapse) Daniel Webster pointed out that Government land was the "cheapest safe object of investment. The sagacity of capital has found this out, and it grasps the opportunity. Purchase, it is true, has gone ahead of emigration; but emigration follows it, in near pursuit, and spreads its thousands and its tens of thousands close on the heels of the surveyor and the land-hunter." The first land boom around Chicago, the so-called "canal land boom" occurred at this time, and like many another town lot boom, did seem to have abrupt beginnings except when viewed as an incident in a broader development. It was fostered by the vision of Chicago as a great city to result from uniting the waters of the Great Lakes with those of the Illinois River, an idea which was not wholly without foundation. The building of the canal was assured by 1833, and the boom got under way immediately and collapsed in 1836, with the issuance of Jackson's specie circular. The canal was not finished until 12 years later in 1848, which will provide as good an illustration as any of speculative hopes outrunning achievement.

These examples could be multiplied and probably research into the psychology of land booms would show that it is not essentially different from speculative exuberance elsewhere. At present we may observe, tentatively at least, that land booms have appeared as the culmination, whether permanent or temporary, of a favorable trend extending over a considerable period; secondly they are usually accompanied by a set of optimistic beliefs, not too complex or abstruse to have wide appeal. It is not necessarily true, of course, that land booms must be preceded by any condition of this sort; it is conceivable that they could develop very rapidly given a pronounced turn for the better in economic circumstances, as has been true of speculation in gas and oil leases in restricted areas. But in the nature of the farm real estate market there are reasons for believing that an upward movement in values together with a fairly active market, if not actual prerequisites of a boom, at least predispose toward one. Under these conditions, estates can be settled, elderly farmers can promptly dispose of their land upon retiring, and there is no accumulation of farm land in the hands of erstwhile lenders. Thus there is no great supply of farm land pressing upon the market and curbing the upward movement of values. But after a long period of a slow and falling market, the opposite situation prevails and there is a considerable accumulation of land which must be disposed of before values are likely to rise sharply. These considerations are augmented by the fact that the farm real estate market is naturally a slow market and even in boom times a relatively small proportion of the farms within an area are sold. An examination of several studies applying to restricted localities would seem to warrant the conclusion that during the decade ending in 1920 the annual rate of voluntary sale ranged from 4 to 10 per cent in areas where the land market was active at that time. In the most active year, 1919, it appears to have been unusual for as many as 10 per cent of the farms in an area to have been sold. Therefore, it is reasonable to conclude that following a

slow declining market when a considerable number of farms awaiting sale have accumulated, some years will be required to absorb these holdings.

Certain market conditions must be considered as influential in any movement of farm real estate values. However optimistic one may be about such factors as farm earnings, the percentage of return upon land investment, and the prospects for a low rate of capitalization, all of which undoubtedly exert a powerful leverage upon land values, one should still take into account these conditions which are related to the character of land holdings at a given time.

The role played by the boom-time psychology is deserving of more attention than we can give it here. Its immediate function is, of course, to stimulate demand and to justify the marking up of prices on the basis of future hopes. In anticipation it is the process of realizing upon resources; in retrospect, it is the process of bringing in the suckers. Since ideas spread slowly at first and then rapidly as they become more widely accepted, the development of the psychological basis of a land boom is probably related to the tendency for booms to appear as a crescendo movement. Furthermore, under the influence of the prevailing psychology sellers are willing to finance the boom by granting easy terms. And indirectly optimism about values has far reaching effects; it is a factor in the marking up of values on land that does not change ownership, and therefore brings about the generally higher values for mortgage loan and tax assessment purposes. In short, the psychological element is the catalytic agent without which a first class boom would hardly be possible.

4. CAN LAND BOOMS BE AVOIDED?

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In a discussion of this topic, it may be well to outline briefly some of the features that are generally found in any particular region before a boom in farm land prices is likely to occur.

First, there must be a sustained period of confidence in agriculture by farmers. This condition must be general over a large area. It may be confined to one type of farming, in fact interest in land where a single type of agriculture prevails increases or decreases much more rapidly than when the form of agriculture involves several sources of income. Diversification seems to give stabilization. This confidence in agriculture on the part of farmers may arise from successful experience or it may be vastly stimulated by special conditions, by promoters, or unwarranted publicity.

Second, not only must there be confidence on the part of land owners, but a period of substantial earnings generally precedes or is present. In other words, farmers must be seeking investment for surplus farm earnings. In my opinion, this feature alone outweighs all others as the basic cause of land booms. Farm land booms arise because farmers in a region have made money in their farm business. They seek a source of investment for that money. It is natural that they should turn to the land as it is a resource they know, the one form of investment they can judge, can see, and control. Increased profit also increases the demand by tenants and others wishing to buy farms before the prices go higher.

Only a speculative answer can be made as to how farm land booms can be avoided. I feel the most effective manner is to provide or encourage another form of investment for the surplus earnings of the farmers of the region. That form of investment must be safe, must command the confidence of both the farmers and the local bankers. The attitude and the credit policy of country banks are as much responsible for harmful land booms, if not more so, than any steps by the farm owners themselves.

To suggest some other investment is fraught with danger as all too often the savings of a generation or several generations go into speculative or worthless purchases. It is no wonder that farm owners bid against one another for choice lands in an effort to have their savings where they can see them and avoid the pitfalls so often found in outside investments. An investment closely tied to agriculture, such as Federal land bank bonds or first mortgages on farms within a community, would come the nearest to meeting their needs. If loans are made on real estate, they should be old mortgages taken from other creditors rather than new financing of new owners who might be purchasing at unwarranted high values.

I doubt if any credit agency such as the Federal land banks can exert enough restraining influence to have any appreciable effect upon a land boom. The amount of loans held by any Federal land bank or any other agency in a given region involves too small a number of farms.

A study of regions where previous land booms have occurred indicates that the greatest injury has been done by credit purely local in character, in which the country banks and frequently the city banks have an important part. There is no question but that farm land booms are extremely harmful in the long run to people of a region. As already indicated, they do not always start from the same cause. I know of one district which has suffered severely where a land boom was promoted largely by real estate agents selling farms to people not native to that particular section. Local investment had no part in the picture. There seems to be no method of controlling such a situation.

GOALS IN LAND USE POLICY

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In trying to formulate the goals to be kept before us in a land use policy it is assumed that the objective of such policies is national welfare and not the private welfare of any particular group. National welfare implies the conservation of our land resources but this phase is the subject of the companion paper on this program. Public welfare is concerned with the right relationship of man to the land, in other words, land tenure. However, the assignment calls for a discussion of land use policies, so land tenure will not be considered in this paper. Since the purpose is to discuss goals or the objectives to be accomplished, we cannot go into programs, laws or administrative actions as such or only incidentally.

A review of past land policies may not be out of order, not only to get perspective or contrast with present objectives, but because these policies are still in the thinking of many people. The goals of our traditional land policies are perhaps nowhere stated in so many words but are implied in the programs which grew out of the policies.

The policies which dominated congressional action up to 1900 had as their goal the alienation of the public domain in order to create private property and taxable wealth. Public vs. private property was not debated in 1787. Jefferson, who was the greatest radical of his time, with his agrarian philosophy was no more in favor of national land ownership than Hamilton. It was believed that under private property we would become a nation of freeholders, secure the greatest production, automatic conservation of our natural resources and a certain equality in the distribution of wealth. With all owning an equal share of the earth's surface, differences in income would be due almost entirely to differences in thrift, skill, industry and intelligence of the owner. This philosophy was applied to forest as well as to farm land and, with some reservations, was also our mineral land policy. Although some attempt was made to sell the land to help the finances of the struggling republic, the goal soon shifted to the homestead, under which the establishment of self-sufficient homes became the ideal. When "free land was gone" and it was thought necessary to help settlers by federal reclamation, the idea of homes was still uppermost in the minds of Congress.[1] It may be that the Homestead Act filled

[1] "If the United States was to continue the policy of providing opportunities for new homes and for producing additional food stuffs it was obvious that the Congress must adopt some scheme of this kind; one

the state with homes, built up communities and reduced the chances of social and civic disorders by giving the settler ownership of the soil, as stated by the Public Land Commission, yet from the standpoint of the farmer himself, emerging from the self-sufficing to commercial agriculture, this policy was responsible for many of the farmers' difficulties. It stimulated settlement whether there was need for land or not. The increase of 200 million acres of land in farms between 1890 and 1900 resulting in an actual reduction of the average value of all farm land in the United States, is an indication of the repercussion of an over-expanded agricultural industry on its members.

After 1900 the nation became aware of its limited resources. The goal of our land policies was to find enough land to feed the rapidly increasing population. During the first 10 years of this century there was an increase of almost 16 million people, and almost 9 million immigrants came to our shores. Both the population increase and the number of immigrants were the largest in our history, but only 40 million new acres of farm land were added during this decade. A population of 200 million people was expected by 1950 and desperate efforts were made to increase production by expanding the agricultural area through clearing, drainage and irrigation and by improving agricultural techniques. The Federal Government established the Reclamation Service for the double purpose of creating more homes and "producing additional food stuffs." It is significant that the goal of the land policies was to solve the food problem and not to help agriculture. Probably no one ever considered this angle of the problem; no doubt it was felt that both farmers and consumers would benefit from this policy.

Accompanying this attempt to get all the land possible into agriculture was also the movement to conserve forests, waters and minerals. In many places the movement to create forests came in direct conflict with the agricultural expansionists. Theoretically it was admitted that submarginal land existed which the foresters could have on the "worst first" theory of land utilization. However, no land owner with land for sale would admit that he had any submarginal land nor would county agents, public officials and immigration agents confess that their county or state was cursed with land so poor that it was fit only for forests—at least not in public! "So as I figured it," says one forester, "to make headway, forestry must first debunk the pretensions of agriculture."[2] In

which would make available to the coming generations opportunities for home making comparable to those offered the pioneers." F. H. Newell in *Conservation of Our Natural Resources*, Van Hise and Havemeyer. (Macmillan, 1930), p. 155.

[2] P. S. Lovejoy, "Concepts and Contours in Land Utilization," *Journal of Forestry*, April, 1933.

this he was soon ably assisted by the agricultural depression. The immediate cause was the readjustment of an overexpanded agriculture, stimulated by the war, but the loss of exports, changes in consumption, and increase in mechanization called for more radical adjustment. More important still was the fact that the expected population increase failed to materialize.

The goal of the present land use policy is to reconcile agriculture to the needs of a stationary population of about 150 million people by 1950 to 1960. Evidently this is not admitted by some; the ghost of Malthus is still haunting us. Said Dean E. V. Ellington of the Washington State College at the recent meeting of the Washington Irrigation Institute at Yakima: "During the next 50 years there will be a demand for every available acre that is capable of the successful raising of a crop, and the acreage involved in the great Columbia Basin will be but a drop in the bucket as compared to the need."[3]

Among the first suggestions offered to solve the land problem was that the land be classified and each class of land be put into its proper use. Like all slogans it sounds well, but is difficult to apply. A public agency might classify the land, but if land is privately owned there is very little power to force the owner to use it according to the prescription. Besides, it makes a difference as to who decides what the best use is. "Ding" Darling stirred up plenty discussion when he said that the grazing of cattle and sheep on public lands was subsidizing the ranchers in competition with the taxpayers in the corn belt. Furthermore, he claimed the best use for the West land was not cattle but wild life.[4]

Presumably a soil survey could be made of all the land and the physical capabilities determined as to its fitness to produce grains, hay, corn, potatoes, etc. However, physical capability is no criterion by which to judge land use when the use must be determined by the demands and needs of 150 million people. If the estimate of 2½ acres of crop land per person is accepted, 375 million acres of crop land will be sufficient to sustain 150 million people. The harvested crop acreage of 1930 was within 15 million acres of that figure and the acreage "available for crops" including crop failure, idle and fallow land and plowable pasture, was 147 acres in excess of the estimated necessary acreage. These estimates make no allowance for the land needed for exports, but even if 60 million acres are added for this purpose it would not increase the burden appreciably.[5] In other words, the present acreage in farms

[3] Washington State College Press Release.
[4] J. N. Darling, "The Jokers in Western Grazing," *Successful Farming*, April, 1936, Vol. 34, p. 9 f.
[5] The average acreage needed to produce the exports of 1914–1922 was placed at 61 million acres by the Yearbook of 1923, p. 458.

is more than ample to take care of the expected population at its peak.

The requirements can be presented in another way. *The National Resources Board Report* (1934) has a table classifying the land of the United States into five grades, Grade 1 being the best and Grade 5 "essentially non-arable land." Since there are roughly 310 million acres of Grade 1 and 2 land, the needs of the nation could be met by using the first two grades of land and about 65 million acres of Grade 3 land. Some 640 million acres of land with agricultural capabilities would be left for other uses besides 882 millions of acres submarginal for agriculture.[6] If only the best land were in use the number of farmers necessary to produce the nation's sustenance and fibers could easily be cut in half. It may be recalled that Sir Daniel Hall estimated that with the proper organization of agriculture a nation producing for the home market could be supported by 10 per cent of its population.

It will, no doubt, be objected that this is a purely economic or materialistic method of arriving at the proper acreage and size of farm population. Some will say that farming is also a mode of living and that the farm is a home. Others will maintain that a large rural population is necessary to keep the nation's population from declining. These conceptions of agriculture hark back to the original land policy and have in them the elements of agrarianism and self-sufficing agriculture as exemplified by the French Canadian farmer or the European peasant. In spite of the arguments which can be brought to support the self-sufficing and peasant type of agriculture, I believe the goal we should set for American agriculture is the typical farm of the corn belt. Like all other goals we may never reach it. Farming as a "way of living" still attracts many who are willing to accept modest returns. Others are repelled or unsuited to urban life, and, to quote Dr. Davis, "stay in or fall back into what the census calls farm population."[7] Some fall back part way and become part-time farmers which is no doubt cheap unemployment insurance for both employer and employee. Neither is it necessary, in my opinion, to increase the number of farmers or the nature of agriculture to inveigle more visits from the stork.

While there is something desirable in the agrarian or peasant mode of farm life, it must not be overlooked that it tends to produce its own characteristic type of mind and outlook on life. Both the Italian and German dictators have exalted and applauded the peasants and inflamed their prejudices of nationalism and against

[6] *Report*, 1934, p. 127.
[7] Joseph S. Davis, "Observations on Agricultural Policy," JOURNAL OF FARM ECONOMICS, November, 1937, p. 867.

industrialism to such a degree that Friedrich has called the peasant "the evil genius of dictatorship."[8]

Instead of looking upon the city as the enemy of agriculture, I believe that the best form of farm relief would be a vigorous urban and industrial civilization and believe that the goal of a land policy should be the stimulation of industry, commerce and export trade.[9] Henry Clay's "American system" held the germ of this idea. This would mean not only a market for the products of the farm but also a place for the surplus youth of the rural areas. The low birth rate of the cities is one of the greatest blessings for farm children; it leaves a place for the ambitious rural boy or girl. What should worry us is not that farm children move to town but that they are inadequately prepared for a place of responsibility in the city. The rural school curriculum could well be designed to help the three or four children who are destined to go to the city as well as to train the one who remains on the farm. Besides, there is no better safeguard for the farmer's interest in legislation than to have a large proportion of rural born people in the cities whose recollections and sympathies are rooted in the soil.

The nation was on the path to the proper balance between the city and the country during the middle 1920's when the area in farms and the number of people on farms were decreasing rapidly. The trend was toward concentration of agriculture on the better lands, and with greater mechanization, a higher income per man. Had the trend continued instead of the "flight to the land" after 1929, the goal of reducing the farm plant to 3½ or 4 million farmers might eventually have been reached.

Adjusting the land area to the needs of our population has been implied in some of the land programs now under way, but others are working in directly the opposite directions. Whereas some states are retiring farmland by purchase or closing it to agriculture by zoning, others are actively encouraging bringing more land into use. The incongruity of federal programs, buying land to take it out of agriculture, subsidizing farmers to keep land out of use on the one hand and bringing 1¼ million acres of land into production

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[8] Carl Joachim Friedrich, "The Peasant as Evil Genius of Dictatorship," *The Yale Review*, Summer, 1937, Vol. 26, #4, pp. 724–740.

[9] In this connection it is interesting that A. W. Menzies-Kitchin after a year's study believed that it was not wise to place people on the land even to relieve unemployment and to raise food for a nation which imports annually £200,000,000 worth of agricultural produce similar to that produced in Britain. He says: "The economic progress of a nation involves a steady increase in the output of manufactured goods and of services. It also involves a decline in the proportion of its people who are employed in producing food and other primary products. The inventions of the nineteenth and twentieth centuries, by expanding and assuring production, have put within man's grasp the ability to acquire the leisure for which he has struggled throughout the centuries. To force him back to the land merely to provide employment will necessitate a return to more primitive methods of agriculture, and a reversal of the normal trend of economic development. To embark on a policy of Land Settlement without considering these possibilities is merely to beg the question." *Land Settlement:* A report prepared for the Carnegie United Kingdom Trustees, Edinburgh, 1935, pp. xi and xii.

by irrigation, has been pointed out many times. Little or nothing was done to prevent the creation of 500,000 new farms between 1930 and 1935 to add to the woes of an already overcrowded industry. Perhaps nothing could be done; at least the "back to the land" advocates—industrialists, magazine writers and even some public officials might have refrained from aiding and applauding the movement. The main result was to shift the relief burden from the cities to the marginal land counties.

It may also be in point to examine some of the contemplated programs from the standpoint of land use—water conservation for instance, particularly flood control. In 1927 the editor of the *Engineering News-Record* raised the question whether it was good economy to spend one-third billion dollars to save land worth one-half million dollars, particularly when there was so little agricultural use for the land.[10] Since then more money has been spent on Mississippi flood control than the entire period before 1927. Perhaps nothing can or should be done to "give the land back to the river" in the Mississippi valley, but certainly on all new projects involving flood control the question might well be raised whether it would not be cheaper to buy land subject to floods and put it into forests than to try to protect it from inundations.

Among the more immediate goals is the adjustment of land uses on the margins between agriculture and forestry, and agriculture and grazing. Progress is being made in the former by zoning, land purchase, and restoring the forests. The recession of agriculture has left the land for reforestation but with the painful accompaniment of tax delinquency, loss of investment to the settler, and loss of the investment of local governments in roads and schools no longer needed. Public assistance is necessary to make these adjustments as painless as possible. The entire framework of local government should be changed to meet the needs of a forest-recreation economy with agriculture secondary or entirely absent. This will involve changes in the forms and functions of government and shifting some of the functions to larger units, consolidation of units or perhaps complete disorganization of local government.[11]

It is significant that J. Wesley Powell proposed the classification of the arid lands into four classes: (1) mineral lands whose small acreage could be disregarded, (2) lands capable of irrigation, (3) timber land, (4) all lands not in the above, *pasturage*.[12] This leaves no place for arable agriculture. Perhaps 1878 was too early to fore-

[10] *Engineering News Record*, December 29, 1927.

[11] O. J. Scoville, "Liquidating Town Government in Decadent Rural Areas of Maine," *Journal of Land and Public Utility Economics*, August, 1937, p. 285–291.

[12] J. W. Powell, *Report on the Lands of the Arid Regions of the United States*, 1879

see that some land beyond the 20-inch rainfall line can safely and profitably be used for agriculture. However, the drought years are powerful arguments to support Major Powell.

Much of the responsibility for the misuse of land of our "arid regions" must be placed on our land laws. Instead of recognizing grazing as a land use, these acts were an invitation to farmers to "break the plains." Cattlemen were forced into the mountains and rougher areas where their herds are now crowding the deer, antelope, elk and other animals which are on their way to extinction. The goal here is to restore the land desirable for grazing to that purpose, and by purchase for public ownership and by zoning restrict its use against arable agriculture. This is a goal "to shoot at"; whether it can be attained is another matter. Can speculators, settlers, and chambers of commerce be restrained when the wet years come? Isaiah Bowman has predicted that the Federal Government will again sell the land it is now buying as soon as the weather cycle swings from dry to wet.[13]

A second goal should be the establishing of a safe system of agriculture on that part of the Plains considered suitable for arable farming. This region will have poor and good years, and a system of reserves in feed and capital should be worked out to even out the lean with the fat years. Unless this can be done the government will have to come to the rescue with feed and seed loans and other emergency measures forever.

The first federal forests were merely the reservation of land already in public ownership. The purpose of the Week's law was the protection of watersheds on the head waters of rivers, and not until 1924 was the objective of the federal forest policy the production of trees to supply the needs of the nation for forest products. This was a complete break with the old policy which assumed that private owners would perform that function. Private ownership had failed to conserve, replenish and provide the future forest needs of the nation.

Had the former trend toward putting all land into farms prevailed foresters would have had a hard time to get the acreage of land necessary to supply the needs of the nation. Now, however, the entire area not needed for agriculture is turned over to them and it is their job to select from the 615 million acres the area

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[13] "It can safely be said that some of the land that will be purchased under any present national scheme will some day be resold to settlers because of the increasing rainfall over a period long enough to hearten the bolder spirits and lead again to a forward push of settlement. It can be predicted with complete assurance that members of Congress will rise 30, 40, or 50 years from now and declaim against the short-sightedness of legislatures and leaders of 1934–35 who talked as if the whole West were becoming a desert once more, the grass lands permanently destroyed, the ground level permanently lowered and the land faced with permanent disaster." "Our Expanding and Contracting Desert," *Geographical Review*, January, 1935, p. 43.

needed at various degrees of intensity of utilization and assign the area between public and private forests. This has been done in the *National Resources Board Report* and need not be repeated here.[14] The area assigned to public ownership is under the complete control of public agencies, but their policies will have much to do with the possibility or impossibility of private forestry to maintain itself. For instance, the government could deliberately choose to make forest products cheap in order to supply people with reasonably priced building materials, furniture and fuel. Certainly a housing program could be stimulated in this way. Perhaps this policy will never be adopted; nevertheless, the private owner realizes the potential competition of publicly owned forests which can be grown at less cost than private forests or which may be sold at less than costs if public policy so dictates. The areas of land available for forests is so great that there is also danger of an over supply of wood products similar to the agricultural surplus if foresters become too enthusiastic about getting all this land into production.[15]

However, the forest has other uses besides furnishing commercial products. Watershed protection, flood control, prevention of erosion, and even modification of climate and rainfall are claimed for forests but the extent of their usefulness for these purposes is hotly debated. The goal of a forest policy should be to retain as much land in "protective" forests as required for these purposes; how much this shall be will depend upon the conclusions of foresters, engineers and physical scientists. In so far as these uses are of public concern with little or no income the ownership will largely be public. With few exceptions, however, commercial and protective purposes are not exclusive and both can be accomplished by the same forest.

The last, but not the least, goal in a land use policy should be provision for a generous area of recreational and residential land. Private recreational land occupied by summer homes, cottages, hotels, clubs, etc., consists primarily of riparian land and furnishes an important part of the tax base of many local governments. This has induced these governments to neglect public recreational areas such as beaches, parks and forests because the public lands do not pay taxes. It is urgent that states and counties get control of enough riparian land to give people access to our public waters.

Recreational land falls into three types. First is land with "in-

[14] *Report*, December, 1934, pp. 135–143; 206–221.
[15] P. S. Lovejoy, *op. cit.*

tensive use" which should be near large centers of population so as to be accessible to the people who cannot afford to be tourists. This is the "highest" use of land and there should be no hesitation in buying good farm land to provide parks, play grounds, forest reserves and beaches for congested urban populations. However, in most cases the hilly, rolling land and that bordering on streams and lakes is not the most fertile land and its use for recreation will not conflict with agriculture. Besides a recreational program calling for the purchase of farm land is in harmony with a policy of reducing the acreage of land in farms.

The second type consists of those areas of such outstanding scenery set aside as national and state parks, national monuments and reservations. However, it also includes those vast areas submarginal for agriculture and commercial forests. This should be managed exclusively as recreational land. The difficulty is to draw the line between forests and non-forest land uses; in fact sometimes the line will have to be drawn between agriculture and recreation or wild life as on the western ranges. The forest itself has recreational values and can serve both purposes under certain conditions. In fact in areas of intensive private recreational regions the counties can afford to maintain practically all of the remaining area in non-commercial forests merely to serve as a "back drop" for the privately owned land. These forests will "pay" even if not a stick of timber is sold from them. The Adirondacks are an example of this form of land use. Such forests can also serve as the home of wild life and resort owners are discovering that for their purposes a live deer, bear or porcupine is worth more than a dead one. I think we are witnessing a growing appreciation of the aesthetic values of our landscape and people are more and more willing to pay taxes to maintain land for the sole purpose of affording pleasure and *re*-creation of mind and body so sorely needed in a modern high tension civilization.

The third type calls for a "reconciliation" of public use of private land for recreation.[16] There is not enough public land to supply the area needed for hunting and fishing, for instance. Besides there are public interests in private land which we have to classify as "recreational" for want of a better word. "The land owner whose boundaries happen to include an eagle's nest, or a heron rookery, or a patch of lady's-slippers, or a remnant of prairie sod, or an historical oak, or a string of Indian mounds—such a land owner is the custodian of a public interest, to an equal or sometimes greater

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[16] Frank A. Waugh, "Reconciliation of Land Uses," *Journal of Land and Public Utility Economics*, February, 1936, pp. 87–89.

degree than one growing a forest, or one fighting a gully," writes Aldo Leopold.[17] The goal of a land use policy should include a partnership between public agencies and private land owners so that objects of public interest may be made available to the public and preserved for posterity. In fact many such places should be acquired directly by some public agency. America is still young and it is necessary to act at once to preserve mementoes of our pioneer days, mills, churches, the first log cabins, covered bridges, rural cemeteries, Indian mounds, and other antiquities. The first homestead has been made a "national monument" and this is in line with a land use policy recognizing non-commercial land uses.

Finally, we must also consider the influence of the highway. The roads of America are a part of the recreational land—millions of people motor for pleasure. Furthermore, the highway is the artery which ties all land uses together. The farm and village are as much a part of the landscape as the forest, stream, mountain or lake. Land uses along the roadside are becoming adjusted to the needs and desires of the traveller and tourist, some of them desirable, others eyesores and deplorable. I believe, however, that wayside parks, landscaped highways zoned against bill boards, hot dog stands, etc., are not far off. Moreover, the migration of people to take advantage of scenery and climate will become more important than ever. Land use policies will have to include provision for residential land for these temporary residents. With greater mechanization of certain one-crop types of agriculture I can visualize entire regions depopulated during the winter. We have to recognize that America is on wheels and more and more people are paraphrasing the old song by singing, "Anywhere I park my trailer is home sweet home to me."

[17] "Conservation Economics," *Journal of Forestry*, May, 1934, p. 543.

GOALS IN CONSERVATION POLICY

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The movement to conserve the national resources of the United States is not new. It had its beginnings in the latter half of the last century. Those farsighted individuals who observed the fast dwindling forest resources of the country began the movement. At first major attention was given to the conservation of the forests of the United States. This movement gathered momentum when Gifford Pinchot and President Theodore Roosevelt became active participants in it. Under the leadership of Theodore Roosevelt the movement broadened to include resources other than forests. The National Conservation Commission was appointed in 1908 and made its report in 1909. The task of this commission was to make an inventory of the existing national resources, to estimate the proportion of them that had been utilized or exhausted and to estimate the time that these resources would last at the existing and probable future rates of use.

To some degree the public became conservation conscious under the dynamic leadership of Theodore Roosevelt. However, the movement lost momentum when he passed from power. Interest in conservation lagged from 1909 until recent years. The later conservation movement had a somewhat different birth from the earlier movement. During the recent depression soil conservation work was undertaken as a worth-while project for the unemployed. When the Supreme Court of the United States declared certain vital portions of the Agricultural Adjustment Act unconstitutional, many of those concerned with agricultural welfare in the United States sought ways and means of continuing some kind of a federally sponsored agricultural program. The present agricultural conservation legislation was attached to the law providing for soil conservation work and the agricultural conservation program was the result.

The earlier movement made some impression on public consciousness for a time but it was soon out of the public mind. Other affairs seemed much more important than conserving natural resources. One logically wonders if the present movement toward conservation will meet a similar fate and pass from the public consciousness with time. The answer lies in the goals or objectives that are the basis of the policies underlying the programs put into effect. If these objectives, as understood by the public, are such that they endure it is to be expected that the present conservation movement

will result in a lasting attitude favoring conservation. However, if conservation is merely a vehicle to be used in securing public approval of policies and programs designed to accomplish things other than true conservation, public interest may be expected to wane.

Consideration of the objectives or goals in conservation requires a definition of conservation. In the opinion of the writer it is impossible to improve on the definition given by Van Hise in his pioneer work entitled "The Conservation of Natural Resources in the United States." President Van Hise says "Conservation means 'the greatest good to the greater number—and that for the longest time'." It will be noted that this definition stresses the human aspect of the problem. It is "the greatest good to the greatest number" of people that real conservation is concerned with. In the present interest in conservation many ardent advocates seem to lose sight of the human element which is so essential in real conservation and stress the physical aspects of the conservation problem. It is hard to secure enduring interest in conserving a tree just for the sake of the tree or a hillside just for the sake of the hillside. Human interests must be a vital part of any conservation program that is to survive.

Many of the early advocates of conservation had a clear understanding of the human elements involved. However, this understanding was not passed on to the general public. Too frequently the public looked upon any utilization of resources as being nonconservational. They lacked a clear understanding of the meaning of true conservation. In its simplest terms it means use without waste. The use of the natural resources is human use and the objective is to secure the greatest good for the greatest number and for the longest time. There is, at present, urgent need for a clearer understanding of this fundamental concept on the part of the general public. Too many people look upon a conservation program as one that holds resources out of use instead of using them without waste for the purpose of securing the greatest good for the greatest number of people.

Discussion of goals in conservation policy must consider the objectives of the present agricultural conservation program. The federal legislation providing for the agricultural conservation program states two objectives. Briefly, these objectives are: (1) adjustment of agriculture, and (2) the conservation of agricultural resources. In practice two other objectives have been added. These are: relief for agricultural people who are in economic distress; and security for those engaged in agricultural production. In operation

these four objectives are not as harmonious bedfellows as might be desired. The attempt to attain adjustment may lead to insecurity for some. The granting of relief through benefit payments may prevent desirable adjustments.

Under the agricultural conservation program agricultural adjustment is to proceed until the incomes of farm people are on a par with their pre-war relationships to the incomes of non-agricultural people in the United States. This is the so-called parity income concept. It differs materially from the price parity concept of the invalidated Agricultural Adjustment Act. The raising of farm incomes to a parity with other incomes is an entirely different matter from raising prices to pre-war parity. Prices may reach parity merely through restriction of output either by control programs or as a result of unfavorable climatic conditions. Prices of several farm products reached parity levels during the past year but this did not result in parity incomes for many farmers who had little or none of the products to sell at the higher prices.

To attain income parity consideration must be given to things other than price. Income is the result of the quantity sold times the price per unit, less the expenses of production. This gives aggregate or total income. Income per individual is the result of dividing the total income by the number of individuals sharing in it. In other words parity income for each individual in agriculture must take into account not only the quantity produced and sold and the price per unit but also the number of individuals on farms. If the number of individuals is large, then a given total income means less than if it is divided among fewer individuals.

Logical consideration of parity income per individual brings one face to face with the problem of how many farmers are needed and how large a farm population is desirable. It is generally assumed that future adjustments will result in the production of smaller quantities of farm products in the United States. This seems to be a valid assumption in view of the stated objectives of the program. It ignores certain basic considerations concerning the relation of the quantity of goods to human welfare but this involves problems in distribution of income that are beyond the reasonable limits of this paper. Lower production seems in order until such time as these problems in distribution are solved. Lower production is in line with the reduced market outlets for products of the farms of the United States. Foreign markets take less of the products of American farms than formerly. Full recovery of these foreign markets seems improbable during the next few years. There have been changes in the quantities of farm products needed

in domestic markets and further changes seem probable. Changes in the age distribution of the population of this country will bring further changes in the quantities of goods needed from farms. Assuming then that distributive problems remain unsolved or are only partially solved within the near future, reduction of agricultural production seems in order if parity incomes are to be attained for those who are on farms.

Adjustment of agriculture so that the average individual on the farms of the United States will have a parity income, under existing conditions, will require reduction of production below usual quantities with existing facilities, which means reduction in the acreage of crops and in the number of livestock and also reduction in the number of farmers. Parity incomes under existing conditions probably can be secured only with a reduction in the number of farmers. The operation of this objective of the present agricultural conservation program will be considered further in connection with the security objectives of the present program.

The conservation of agricultural resources is the second of the principal objectives stated in the federal legislation providing for the present agricultural conservation program. To conserve means to use without waste. Conservation does not mean withdrawal from all uses but shifts in uses where shifts are desirable. Conservation involves the problem of balancing values in the present and in the future, between the individual and society. The ultimate goal is the greatest good for the greatest number and for the longest time. Decisions as to what is the greatest good for the greatest number and for the longest time are difficult and in making such decisions mistakes probably will be made. However, it is necessary to make decisions and action based on decisions that prove to be wrong is far less damnable than inaction.

The decisions to be made involve the use of resources in ways that will promote human welfare. The early pioneers of this country have been criticized because they destroyed the forests. The forests covered the land which they wished to farm. If one were in the same position as these pioneers what would one do? Leave the trees standing and forego the use of the land? There probably would have been no more certain way for these pioneers to starve to death than such a procedure. They used the resources at their command in ways that, to them, seemed wise. They had urgent need for the land but far less urgent need for the trees growing on the land. Viewed in the light of conditions today, the destruction of forests is waste but for the pioneers it is highly questionable whether much of it was waste. They were promoting human wel-

fare by using natural resources in the way which seemed best in the light of existing conditions.

Another illustration of conservation practice involving use which to some seems exploitive is found in the use of minerals and mineral products. There are policies for the conservation of minerals, oil and gas in the United States. These policies are designed to promote use without waste. They are truly conservational when this is accomplished. It may be argued that these resources could be conserved by refraining from using them so that they might be saved for a future generation. Using them destroys them and they cannot be reproduced. But if they are saved for a future generation, just which generation are they to be saved for? If for some particular generation or generations then why not the present generation? Each generation answers that question by using the resources and such action cannot be criticized unless there is waste in the use of the resources.

There is need for a similar viewpoint in conservation practices in the agriculture of the United States. There are those who advocate soil building and soil conserving practices without regard for the well-being of those who farm the land. True conservation may result in the depletion of soil fertility in some regions. This will occur unless practices available for use in those regions are those which will maintain soil fertility and at the same time provide for the well-being of those who farm the land.

In deciding upon goals in conservation policies it is necessary to consider how far to go in fully retaining the agricultural resources of the country and at the same time securing the greatest good for the greatest number of people and for the longest time. Practices which conserve the soil can be justified only so far as it pays to practice them when the returns are considered over the longer time in the life of the present generation. Consequently it follows that, in some instances and possibly in many instances, the most desirable adjustments, when made, will result in types of farming which fall short of providing for the maintenance of soil fertility or even of soil productivity. Human welfare is the real goal in a program of conservation.

The basic importance of human welfare in a program of conservation has been recognized in publications of the Agricultural Adjustment Administration when it has been stated that the objectives are the use of resources in ways that will result in a well-balanced and profitable agriculture.

Since a truly conservational program results in the promotion of well-being of those who use the resources and agricultural adjust-

ment has for its purpose the adjustment of the use of agricultural resources in ways that will increase farm incomes, it becomes apparent that a program of adjustment and a program for conservation in reality are the same thing. Both have as their purpose the securing of the greatest good for the greatest number. So in these two objectives of the agricultural conservation program one finds really one objective stated in two ways.

When consideration is given to the objectives in the present program which have gotten into it in practice one does not find the same harmony that is to be found in the adjustment and conservation objectives. The legislation providing for the agricultural conservation program does not specify that it is to provide relief for those farmers who are in financial distress. In practice this has been the case. Evidence of this relief objective is found in the provisions of the 1937 program whereby a farmer could earn a minimum in benefit payments even though the organization of his farm business needed no adjustment. He was paid for performing practices rather than adjusting his business. Again, there are sections of the country where no major adjustments in the agriculture of the region seem needed. Payments were available to the farmers of such regions. Also payments were available to farmers in regions which should be retired from production.

The relief phases of the program run head on into the conservational and adjustment phases. Often the extending of relief to a farmer makes it possible for him to continue farming. Perhaps agriculture and society as a whole would be served best if such a farmer ceased to farm and became one of those persons who will leave the farming industry as the number of farmers is reduced if parity incomes are secured for those who remain on farms. It would seem that the program should be freed of the relief phases if the adjustment and conservation objectives are to be attained. Otherwise the program in operation tends to defeat its own purposes.

In recent years Americans have become security conscious. This change in attitude is reflected in the agricultural conservation program. The parity income concept, when considered logically and put into practice, would result in fewer farmers. Yet, the program has made it possible for every farmer to have a base from which his adjustments are made. The program in practice gives each farmer a vested interest in farming and thereby tends to keep all farmers on their farms regardless of whether they are needed as farmers. This tends to give security to those who might be forced out of farming if needed adjustments were made. The operation of the program implies that every farmer has a right to continue

in farming whether he is efficient or inefficient, and whether his land is marginal, sub-marginal, or super-marginal. It is assumed that he is entitled to participate in the program and share in the payments. This promotes security but does not necessarily promote needed adjustments or true conservation for agriculture. So long as this continues, it is extremely doubtful if the needed adjustments will be attained. It is impossible to make every farmer secure as a farmer and at the same time make adjustments which require fewer farmers.

In practice one other thing is apparent in the present program which tends to defeat its real purposes. This is the tendency on the part of too many farmers to make those adjustments or follow those practices which will permit them to secure the benefit payments even though these changes and practices do not necessarily lead to a better adjusted system of farming for the farm in question. Neither the farmers nor those in charge of the programs are wholly responsible for this situation. Landlord-tenant relations sometimes may prevent the more desirable system of farming from the standpoint of the tenant and the program. Again, lack of funds or lack of credit may cause some farmers to adopt a short-sighted policy which brings in the payments but gets them little closer to a well-adjusted system of farming. Evidence of this is found in the use of annual legumes to be plowed under rather than the seeding of alfalfa or permanent pastures in some regions.

If the program is to attain its real objectives, which are adjustment and conservation, it should be modified so that farmers will be motivated by the desire to make the needed adjustments rather than by the desire to secure payments. Such modification involves knotty problems but the fact that the problems are difficult should not be used as an argument for failing to attack them. Too many farmers seem to desire to keep in such a position from year to year that they will have some adjusting that needs to be done and for which they will be paid. This should be avoided.

Many of the things which have been said may sound critical of the present program. Certain of the practical objectives of the present program have been questioned. The writer is well aware that those in charge of the programs are conscious of these faults. They too desire a program that is truly conservational in character. Some of the undesirable objectives in the program have been included as a result of practical expediency. However, it would be folly to shut one's eyes to these faults. There is need for careful consideration of them. A better understanding of the nature of the problem on the part of the public may make possible the elimi-

nation of some of these undesirable features. Fewer farmers are needed but as the number is reduced, other employment must be found for those who are displaced. Conditions existing in recent years have made this impossible for many. Their salvation has been in staying where they were whether they were needed in agriculture or not. Considered from this standpoint the agricultural problem embraces all of American society. Perhaps satisfactory objectives which will result in the solution of the whole of the problem will have to embrace the entire economic problem of the American people. At least the objectives in an agricultural program must be in harmony with objectives for other portions of American industry. Agriculture cannot unload its unneeded farmers and their families on the towns and cities unless there is a place for them in the towns and cities. Neither should agriculture be the dumping ground for the misfits from other industries.

In their broadest phases the goals for conservation should be those which will promote the greatest good for the greatest number for the longest time. It is doubtful if this can be attained by considering only a portion of the people. The economy of the nation must be looked upon as a unit and the interrelation of its various parts taken into account. True conservation is measured in human well-being rather than in terms of the savings of physical things or of characteristics of physical things. The problem of conservation is a human problem and not a physical problem and the goals must be human well-being.

An important part of the objectives of any program of conservation must be education of the public so that there will be general understanding of the real meaning of conservation. The present agricultural conservation program is urgently in need of better public understanding of these truly conservational objectives. With such understanding it might be possible to free the program from some of the present undesirable features and make possible more rapid progress in attaining true conservation for American agriculture. If such public consciousness is not secured, the present conservation movement may follow the example of its earlier predecessor and be relegated to the past in the thinking of the people.

Discussion by C. F. Clayton

Bureau of Agricultural Economics

We are, indeed, fortunate in the selection of Professor Wehrwein to deliver a paper on the subject of "Goals in Land Use Policy." Professor Wehrwein brings to the discussion of this subject not only an intimate knowledge of the theory and literature of land utilization, but also a

sense of realism derived from close personal touch with practical efforts to deal with the complex problems of land-use adjustment.

In general, Professor Wehrwein recognizes that land-use policy should be pointed to certain goals that may be regarded as ultimate, and to others that may be regarded as immediate. Among the former, I am especially interested in his suggestion regarding the stimulation of industry, commerce, and export trade with a view to the development of a vigorous urban and industrial civilization and in his observation that such a policy would probably represent the best form of farm relief.

Before commenting further upon this interesting suggestion we may note that Professor Wehrwein includes, as an immediate goal of land-use policy, adjustments on the extensive margin of agriculture. Among measures or programs to accomplish such adjustments mention is made of the public purchase and restoration of lands to forests and grazing.

At this point, it seems to me, Professor Wehrwein touches on what may properly be regarded as the basic issue in land-use policy. To what extent, if at all, is it true that public regulation or control of land use is essential to achievement of the proper goals of land-use policy?

Without public regulation the agricultural industry, with its large fixed investment in land, appears to be subject to a vicious and chronic form of cut-throat competition similar to that which has led to public regulation of railroads and certain other industries whose fixed investments are large in proportion to their variable expenses.

Subject, as he is, to cut-throat and unregulated competition, the farmer does just what the railroads and other similar industries did—he lets his plant depreciate. His farm goes down hill. The winds and the waters—and the bankers—take it.

Broadly stated, the goal of land-use policy is to establish and maintain a relationship of man to land in which both shall be fruitful and fertile. What that relationship should be and how to establish and maintain it is the agricultural problem. As a practical matter, its solution must be sought through the process of social experimentation. That process involves the application of democratic methods to achieve the necessary public regulation and control of this basic industry.

But adjustments in the agricultural industry must ultimately depend upon adjustments in other industries.

In this connection let me revert to Professor Wehrwein's suggestion that stimulation of commerce and export trade with a view to the building up of a vigorous urban and industrial civilization should constitute a goal of land-use policy. In the view of this commentator, it is, indeed, true that this country faces an issue of fundamental and far-reaching importance with respect to the formulation of basic policies for the future utilization of our lands. The issue, in short, involves the question whether our policies of land utilization should be directed to the development of an essentially self-contained national economy or an economy based on international free competition and specialization as dictated by the principle of comparative advantage. Here, as Secretary Wallace has pointed out, "America must choose." The realities of the international situation today leave little room for doubt that America's choice must be conditioned by circumstances quite outside the scope of those relationships which, academically considered, should govern America's decision.

Workers in the field of agricultural economics, as most of us here present are, are naturally disposed to think of land-use policy as pointed exclusively to the utilization of lands for agricultural purposes; to regard land-use policy as something that is capable of formulation and realization by specific application to adjustments in the use of our rural lands; to disregard the essential relationships between the utilization of our rural lands and the utilization of lands and other resources employed in manufacturing, commercial, and other industrial pursuits.

There is a tendency to ignore the fact that the validity of land-use policies and the effectiveness of programs based upon them, are contingent upon the integration of policies affecting the utilization of rural lands with policies directed to the utilization of our other national resources employed for manufacturing, commercial, and other industrial purposes.

Agriculture can never lift itself by its own boot straps.

Professor Wehrwein is right in pointing to the need for developing a vigorous urban and industrial civilization as a primary goal of land-use policy.

There is, it seems to me, significance in the fact that agricultural economics has long been recognized as a field of specialized study and occupies a prominent place in the field of public administration, both in the Federal and in State Governments. Industrial economics, as a coordinate term applied to the study and administration of those resources organized for production along manufacturing, commercial, and other industrial lines, is a term so little used as to leave doubt as to its connotation and of so little application as to find no place among the established agencies of government.

Agriculture can not "go it" alone.

Land-use policy, to be effective, must involve more than the formulation of policies and programs directed to the utilization of our rural resources. The conservation of our rural lands and the welfare of our rural population would be greatly advanced by the establishment in our universities of departments of industrial economics, providing curricula for the training of students in the fields of industrial organization and management along lines paralleling those now offered to students of agricultural economics. A properly organized agency of government, as well as industry itself, could then draw upon this reservoir of trained personnel to explore problems of industrial organization and the utilization of our industrial resources. A trained personnel is needed for basic and continuing research in industrial economics. Such a foundation is needed for the development of that vigorous urban and industrial civilization which has been aptly characterized as a primary goal of land-use policy.

Without a systematic approach to our problems of industrial organization and management, agriculture may still reach some of its immediate goals, but without that approach, I beg leave to doubt that agriculture ever will be able to achieve those ultimate goals to which it legitimately aspires.

FLEXIBLE PAYMENT PLANS FOR FARM MORTGAGE LOANS

F. F. Hill
Farm Credit Administration

The establishment of the Federal Land Bank system in 1917 with the long-term amortized loan as its cornerstone marked a big forward step toward developing a sounder basis for extending farm mortgage credit. In certain quarters, the system was hailed as the solution to the farm debt problem. However, the drastic decline in commodity prices after 1929, rapidly mounting delinquencies on mortgages regardless of plan of repayment, and resulting foreclosures with losses to both borrowers and lenders again focused attention on the problem and brought us to a sharp realization of the fact that there are still some unsolved problems in connection with the extension of farm mortgage credit.

Many reasons for the state of affairs which had developed by 1932 have been advanced, such as: (1) excessive lending during the post-war boom, due in part to high land values and in part to competition between lenders for the farm mortgage business; (2) conversion of unsecured debt to mortgage debt after the 1920–21 decline; (3) use of short-term mortgages and the unwillingness of lenders to renew them during the depression; (4) too much rigidity in the long-term amortized loan; (5) desire of lenders to speculate in farm real estate by acquiring farms through foreclosure; (6) too much "high" living by the farmers; and (7) the decline in price levels. Since my task is to discuss repayment plans rather than the farm debt problem in general, I merely wish to state in passing, without taking time to elaborate the point, that in my opinion the drastic decline in farm prices and incomes, rather than the plan of repayment of outstanding loans or any other single factor, was the principal reason for the difficulties in which so many debtors and creditors found themselves in 1932–1933.

Can a Recurrence of the 1932–1933 Debt Situation be Avoided or Minimized?

Events during the 1929–1932 depression naturally have raised the question as to how the effects of such catastrophes might be avoided or at least minimized in the field of farm mortgage credit. In general, discussions of this subject have been along three lines, namely: (1) the possibility of bringing about a greater degree of stability in the price level; (2) improvements in appraisal and lending policies, and (3) adoption of more flexible repayment plans.

Fluctuations in the General Price Level.—If the opinion previously stated is correct, namely, that the drastic decline in farm prices and farm incomes was primarily responsible for the farm debt situation of 1932–33, then it follows that similar situations are certain to arise again in greater or less degree unless ways and means can be found to bring about a greater degree of stability in the general price level. A discussion of this aspect of the problem is beyond the scope of this paper and the abilities of the writer. It is mentioned here merely to indicate that while in the writer's opinion other avenues of approach may serve to reduce to a degree the extreme acuteness of the problem, they are not likely to enable us to avoid a farm debt situation such as that which existed in 1932–33 if prices should again decline as they did during the period 1929–1932. In other words, other remedies are likely to be partial rather than complete. However, because other remedies are not likely to effect a complete cure is, of course, no reason for ignoring the possibilities of relief through their application.

Appraisal and Lending Policies.—In 1933 the Farm Credit Administration adopted the policy of appraising farms on the basis of so-called "normal value" rather than on the basis of current market values. Normal value is interpreted as the value that can be sustained from earnings, given normal prices. To date estimates of normal prices have centered around 1910–1914 prices adjusted in the case of certain crops for shifts in production, demand and other factors. Only time will tell whether the basis of forecast used will prove reasonably accurate.

In adopting its normal value policy, the Farm Credit Administration recognized that under 1933 conditions it would have been impossible to extend sufficient credit to help any considerable number of the many distressed farmers of the country unless it could safely be assumed that conditions would improve in the future. The plain facts of the case, of course, were that the Farm Credit Administration's policy of using normal value in effect meant lending on values which were higher than current sale values. The future consequences of following this policy, of course, cannot be foretold. The final outcome will depend primarily on the level of actual values and incomes, as compared with appraised normal values, over the term of the loan; in other words, on the accuracy of our forecast. However, it would seem that such a policy, whether the basis of determining normal values is or is not the same as that used by the Farm Credit Administration, should, if followed by lenders generally, tend to bring about a greater degree of stability in the farm mortgage picture than if, as too frequently in the past,

current land values provide the primary basis for determining loan values.

At this point I should like to make it clear, however, that it is not my view that we have in the "normal value" idea a panacea for the farm debt problem. So long as prices continue to fluctuate, forecasts will continue to be inaccurate including the forecasts of persons buying farms or going into debt for other purposes as well as the forecasts of the persons lending them the money to carry out their undertakings. All that we can hope to accomplish through the normal value idea even if it should come into widespread use is to avoid the difficulties arising out of the more extreme fluctuations.

Flexible Payment Plans.—In addition to discussions of possible ways and means of bringing about a greater degree of stability in the general price level and of the normal value concept, considerable discussion, mostly of a theoretical nature, has been had of flexible repayment plans on farm mortgages as a possible means of minimizing, at least to a degree, farm debt situations such as that which existed in 1932–1933.

To me, it seems of utmost importance, in analyzing the possibilities of flexible repayment plans, that we get the problem in its proper perspective. To what extent has the breakdown of farm mortgage loans been attributable to the original amount loaned and to what extent has their breakdown been due to the plan of repayment incorporated in the mortgage contract? Unfortunately, it seems impossible to locate any data or analyses of past loan experience which bear on these particular questions. It would seem unquestionably true that flexible repayment plans based on the farmer's ability to pay each year would iron out difficulties resulting from extreme year-to-year fluctuations around the average income of the farmer during the term of the loan. That is to say, if the appraisal of the farm and the determination of the amount loaned reflect an accurate estimate of the average income of the farm during the term of the loan, and the annual income fluctuates widely from year to year, a flexible repayment plan would avoid the accumulation of large delinquencies during the years of low income. However, if the appraiser's estimate of the average income from the farm is too high and more money is loaned than the farm income can possibly repay, no plan of repayment will correct the error. If, as has been known to happen in the past, income follows a downward trend which was not foreseen at the time the loan was made, a flexible payment plan will merely postpone the day of reckoning.

This rather elementary, but highly important, principle may be illustrated by comparing the estimated net family income of farms in the Newfane-Olcott Area of Western New York for the period 1913–1933 with the annual installments required to retire a 20-year loan of $5,000, $7,500 and $10,000 (figure I).[1] In 13 of the 21 years,

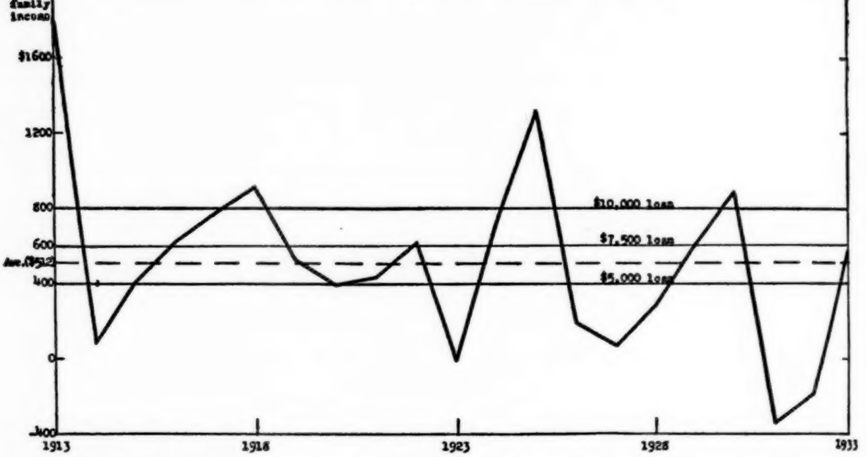

FIG. 1. Net family income per farm in the Newfane-Olcott Area, New York, 1913 to 1933 and installments on 20-year, 5 percent loans of $5,000, $7,500 and $10,000 loans.

the income would have been sufficient to cover the fixed installment of $400 on a $5,000 loan. In the remaining 8 years the loan would have been delinquent, unless the borrower had set aside savings for such a contingency or unless a flexible plan of repayment had been in use. With a $7,500 loan and a $600 installment due each year, the income would have been sufficient to meet the required payments in only 9 of the 21 years. With a $10,000 loan and annual payments of $800, income would have equalled or exceeded the required installment in only 4 of the 21 years. In 10 of the 21 years income would have been insufficient to pay the interest at 5 per cent on a $10,000 loan. The average net family income over the 21-year period was only $512 or $12 more than enough to meet the annual interest charge of $500. No plan of repayment would have enabled the borrower to repay a $10,000 loan during the pe-

[1] Net family income is defined as farm receipts less expenses less family living expenses. In computing net family income unpaid labor was not included as an expense. Data as to farm receipts and expenses were supplied by Professor G. P. Scoville of Cornell University who has taken farm management surveys in the Newfane-Olcott area of Niagara County, New York, each year since 1913. Data as to cash family living expenses are estimated by the writer based on data from studies made by Martha Hudgins in the Chenango Valley of New York State; and the index of prices paid by farmers for commodities used in living as reported by the U.S.D.A. Hudgins' study is reported in *Farm Economics*, No. 55, September, 1928.

riod 1913–1933 or even make a material reduction in the unpaid principal.[2]

Obviously no plan of repayment as such disposes of the basic problem of determining the amount of debt that a given farm can reasonably be expected to retire or carry over a given period of years under average management. The amount of the loan in relation to future earnings is the most important factor in determining whether the loan will or will not be repaid as well as the difficulties in which the farmer will find himself during periods of widely fluctuating prices. If future earnings are over-estimated no type of repayment plan will keep the mortgage current. Such a statement is, of course, elementary but this basic fact while no doubt recognized frequently has been minimized or pushed into the background, it seems to me, by persons who are enthusiastic about flexible repayment schemes as a means of keeping borrowers out of financial difficulties. It is important to keep in mind at all times that all a flexible repayment plan can hope to accomplish is to iron out year-to-year variations. It cannot overcome an unfavorable relationship between farm income and farm debts.

Before entering into a discussion of flexible repayment plans, it is necessary to decide at the outset the degree of flexibility which is to be incorporated in any such plan. Is the plan to be flexible both as to interest and principal payments, or as to principal payments only? The following alternatives suggest themselves:

(1) The amount due each year might be limited to the landlord's share of the returns (net) or a fixed percentage of the returns from a given source such, for example, as one-third of the wheat crop. A variation of such a plan might provide for the delivery each year or an annual payment equal to the value of so many bushels of wheat, pounds of cotton or quantity of some other farm product or products to be agreed upon. Under plans of this type, there would undoubtedly be individual years in which the amount of the payment would not be sufficient to pay the interest. However, so long as the borrower made the payment provided for by the mortgage contract, the loan would not be considered delinquent and subject to foreclosure even though one or more year's interest was unpaid.[3]

(2) The amount due each year might be limited to the landlord's share of the returns (net) or a fixed percentage of the returns from a given source but with a minimum payment equal to the interest on the unpaid

[2] Since the estimated value of real estate per farm in the Newfane-Olcott Area for the farms included in the survey averaged approximately $16,000 for the 3-year period 1913–1915, a $7,500 loan would have been equal to approximately one-half and a $10,000 loan equal to approximately two-thirds of the estimated sale value.

[3] The question has been raised in at least one discussion of flexible repayment plans as to whether or not interest is to be written off by the lender under such circumstances. This raises the whole question of variable interest rates. Time does not permit a discussion of this problem. A plan less likely to result in a substantial increase in the rate of interest charged borrowers and to have a better chance of being accepted by lenders would provide for accumulating unpaid interest with the understanding that future payments were to be first applied on unpaid interest items and that only after all interest had been paid in full were remaining balances to be applied in reduction of principal.

balance of the loan. In case the payment during a given year was not sufficient to pay the interest, the loan would be considered delinquent and subject to foreclosure. Principal payments would be made only in those years when the annual payment exceeded the amount of interest due and unpaid.

Assuming that under (1) the unpaid interest is accumulated rather than charged off by the lender the total amount owed by the borrower at any particular time (interest and principal) would be the same under (1) as under (2). The only difference is in the delinquency status of the loans. While this is an important distinction, only the second of the two alternatives is compared with other types of repayment plans in this paper, since the dollars and cents figures are the same and the second alternative appears more likely to be used in actual practice than the first.

(3) The amount due each year might be determined by adjusting a basic installment according to a pre-determined index intended to reflect changes in the farmer's debt-paying ability as, for example, the price of the principal product or products produced in the area. The basic installment would represent the appraiser's estimate of the average debt service payment the farmer could be expected to make over a period of years. Under this plan the total installment called for by the formula agreed upon would be due and payable each year. Such installment might or might not be sufficient to pay the interest on the loan. However, delinquency would be determined not on the basis of whether interest was or was not paid but, as in the case of the fixed payment called for under a standard amortization plan, on the basis of whether the installment was or was not paid in full. If, for example, the payment called for in a given year is $250 and interest due amounts to $175, the loan would be delinquent even though the borrower made a partial payment of $200.

(4) Same as (3) except that the full amount of the accrued interest would be payable each year.

Under the first and third of the above alternatives, both interest and principal payments would be flexible. Under the second and fourth alternatives, principal payments only would be flexible.

A question may well be raised at this point as to how much relief can be granted the borrower by deferring principal payments only in years when farm returns are low. For loans made on an amortization plan providing for a fixed annual installment, the extent of this relief would depend on the term of the loan the number of years it had been outstanding when the bad year came along. The shorter the term and the longer the loan had been oustanding the greater the possibilities of granting relief by deferment of principal, since an increased proportion of each successive installment is applied on principal. For example, during the first 5 years of a 5 per cent 35-year loan made on such a plan, only 20.5 per cent of the amount of the installments is applied in reduction of principal, as compared with 69.5 per cent during the 26th to 30th year, inclusive. The distribution of installments between interest and principal by 5-year periods during the life of the loan would be as follows:

Annual Installments	*Percentage of total installments*	
	Interest	*Principal*
1– 5	79.5	20.5
6–10	73.8	26.2
11–15	66.6	33.4
16–20	57.3	42.7
21–25	45.5	54.5
26–30	30.5	69.5
31–35	12.3	87.7

If the mortgage contract calls for some other plan of amortization, such, for example, as that of specifying a certain amount to be paid on principal each year, then the amount of the relief which can be granted will depend on the size of the specified payments.

During periods when large numbers of farmers are in financial distress, the difficulty in a great majority of instances is likely to be due to the fact that they are attempting to pay debt service charges on loans contracted when farm prices and farming returns were at substantially higher levels. Under such circumstances, interest charges alone may be relatively high with respect to current farm incomes in which case the deferment of principal will afford relatively little relief (Table 1).

Table 1. Relation of Interest and Principal Payments to 1936 Cash Income per Farm in Iowa, for Loans Made in Specified Years
(In each case assuming a 35-year 5 per cent loan equal to 50 per cent of the value of the farm)

	Year loan was made			
	1913	1920	1933	1936
Value of 150-acre farm	$15,000[a]	$32,000	$8,700	$11,000
Amount of loan (50 per cent of value)	7,500	16,000	4,350	5,500
Loan installments due each year	460.58	982.56	267.13	337.76
	Payments due in 1936 on loans made during:			
	1913	1920	1933	1936
Loan installments due				
Interest	$197.70	$584.00	$209.67	$275.00
Principal	262.88	398.56	57.46	62.76
Total	$460.58	$982.56	$267.13	$337.76
	Percentage of 1936 cash income per farm ($2,500)[b]			
	1913	1920	1933	1936
Interest installment	7.9	23.4	8.4	11.0
Principal installment	10.5	15.9	2.3	2.5
Total	18.4	39.3	10.7	13.5

[a] The average value of land and buildings in Iowa as reported in the 1910 Census was $96, compared with a value of $100 used in the above example. Values for 1920, 1933 and 1936 represent the 1913 value multiplied by the U.S.D.A. index of farm real estate values per acre for Iowa, which were as follows: 1913 = 100; 1920 = 213; 1933 = 58; and 1936 = 73.
[b] Based on receipts from sale of principal farm products (including benefit payments) during 1936 as reported by the U.S.D.A. and the number of farms in Iowa as reported in the 1935 Census of Agriculture.

Comparison of Repayment Plans

Even though flexibility in a repayment plan is confined to principal only, the borrower's repayment record ordinarily will be

better under such a plan than under a plan which provides for the payment of a fixed installment, assuming that the payment called for under the flexible repayment plan varies directly with the borrower's debt-paying ability. This follows from the fact that the payment of interest only will keep the loan current under the flexible repayment plan whereas each installment under the fixed payment plan includes a principal payment in addition to interest. It would not be possible for the delinquency record to be as good under the fixed payment plan as under the flexible payment plan unless the amount available each year for debt service equaled or exceeded the annual installment called for under the fixed payment plan. The difference in the borrower's repayment record under the two plans will, of course, depend upon the variability of the amount available to the borrower for debt service and the size of the annual installment called for under the fixed payment plan in relation to the average amount available for debt service.

One method of comparing the probable manner in which different types of repayment plans will work from the standpoint of both borrower and lender is to compare the way they would have worked in the past. To be conclusive, studies of this kind would need to be made for different types of farming, for different areas, and for different periods of time. However, comparisons based on data for even one area for a particular period of time should prove helpful in bringing out some of the principles involved.

Each year since 1913 Professor G. P. Scoville of the Department of Agricultural Economics and Farm Management of Cornell University has made farm business surveys in the Newfane-Olcott Area of Niagara County in western New York State. Detailed data as to farm receipts from various sources, farm expenses, crop yields, and related data are available for each of the 21 years during the period 1913–1933. While there is considerable farm-to-farm variation within the area, the principal source of farm income is from the sale of fruit with sales of apples and peaches accounting for 57 per cent of all farm receipts during the period 1913–1933.

Farm receipts, farm expenses, estimated cash living expenses, and estimated net family income for each of the years 1913–1933 are shown in Table 2. Farm expenses do not include unpaid family labor or a charge for the operator's labor or management. All data represent averages per farm for each year. Data as to farm receipts and farm expenses are from Professor Scoville's studies. Cash living expenses were estimated by the writer on the basis of studies made in central New York State for the years 1921–1925 with adjustments for changes in the cost of living as reflected by the index of

prices paid by farmers for commodities used in living as reported by the U. S. Department of Agriculture (see footnote 4, Table 2). The term *net family income* as used here is the difference between farm receipts and the sum of farm expenses and estimated cash living expenses. It represents the net amount available to the farm family for savings and the retirement of indebtedness.

TABLE 2. RECEIPTS, EXPENSES AND NET FAMILY INCOME PER FARM IN THE NEWFANE-OLCOTT AREA, NEW YORK, 1913–33[1]

Year	Farm receipts[2]	Farm expenses[3]	Estimated cash living expenses[4]	Net family income[5]
1913	$4,095	$1,860	$438	$1,797
1914	1,905	1,371	447	87
1915	2,376	1,499	469	407
1916	2,460	1,290	543	627
1917	3,295	1,875	644	776
1918	3,698	2,008	775	915
1919	3,355	1,904	920	531
1920	4,916	3,550	972	395
1921	3,257	2,114	704	439
1922	4,158	2,851	682	625
1923	2,828	2,127	700	1
1924	3,492	2,070	696	726
1925	4,809	2,779	718	1,312
1926	3,439	2,531	710	195
1927	2,736	1,968	696	72
1928	2,858	1,860	701	293
1929	3,673	2,104	692	612
1930	3,980	2,450	648	882
1931	2,223	2,012	552	−341
1932	2,154	1,860	473	−179
1933	2,659	1,607	477	575

[1] Data furnished by Prof. G. P. Scoville, Department of Agricultural Economics and Farm Management, Cornell University.
[2] *Farm receipts* include proceeds from the sale of crops and livestock products during the year plus the value of crops and livestock products on hand at the end of the year, which were to be sold; net appreciation on livestock; and receipts from miscellaneous sources such as outside work and rent of buildings. If the value of feeds and supplies on hand at the end of the year exceeded the value of those on hand at the beginning of the year, the difference was considered as a receipt.
[3] Farm expenses, as used here, includes all farm business expenses except unpaid family labor. Household or personal expenses are not included, but the value of board furnished hired help is included. If the value of feeds and supplies on hand at the end of the year was less than at the beginning of the year, the decrease was included as an expense. Net depreciation on livestock also was considered as an expense.
[4] *Estimated cash living expenses* includes amounts spent for food, clothing and other household expenditures, exclusive of items furnished by the farm. The estimate for 1921–25 was $700 based on data for Chenango Valley, New York farms, as reported by Martha Hudgins in Farm Economics No. 55, page 977, published by Cornell University. Data for other years were estimated from the U.S.D.A. index of prices paid by farmers for commodities used in living. During 1921–25 this index averaged 160 per cent of the 1910–14 base. The index was converted to a 1921–25 base and multiplied by $700 to obtain estimates of cash living expenses by years.
[5] *Net family income* equals farm receipts less farm expense and estimates of cash living expenses.

Estimated net family income in the Newfane-Olcott Area during the period 1913–1933 varied from $1,797 in 1913 to −$341 in 1931. The average for the period was $512.

If an average farmer in the Newfane-Olcott Area had obtained a loan in 1913 calling for a fixed annual installment approximately equal to the average net family income for the area for the period 1913–1933, he would have been delinquent during the greater part of the 21-year period assuming that net family income in a given year represented the total amount available to meet the installment on his loan (Table 3). This of course is due to the extreme varia-

bility of net family income and the fact that the annual installment was arbitrarily fixed at a figure ($510) approximately equal to the average net family income ($512) for the 21-year period. If the amount of the installment were reduced, the repayment record would be affected accordingly.

TABLE 3. REPAYMENT RECORD UNDER A FIXED PAYMENT PLAN WITH AN ANNUAL INSTALLMENT OF $510 DUE EACH YEAR ASSUMING THAT THE AMOUNT AVAILABLE FOR PAYMENT EACH YEAR WAS EQUAL TO THE NET FAMILY INCOME PER FARM IN THE NEWFANE-OLCOTT AREA OF WESTERN NEW YORK DURING THE PERIOD 1913–1933[1]

Year	Amount due			Amount paid	Balance due	Memoranda				
								Amortization table for $6,400 5% 20-year loan. Annual installment $510. Final installment $123.33[1]		
								Annual installment		Unmatured balance of loan
	Current installment	Unpaid balance of previous installments	Total amount due			Net family income	Amount available for other purposes	Interest	Principal	
										$6,400.00
1913	$510	—	$ 510	$510	—	$1,797	$1,287	$320.00	$190.00	6,210.00
1914	510	—	510	87	$ 423	87	—	310.50	199.50	6,010.50
1915	510	$ 423	933	407	526	407	—	300.52	209.48	5,801.02
1916	510	526	1,036	627	409	627	—	290.05	219.95	5,581.07
1917	510	409	919	776	143	776	—	279.05	230.95	5,350.12
1918	510	143	653	653	—	915	262	267.51	242.49	5,107.63
1919	510	—	510	510	—	531	21	255.38	254.62	4,853.01
1920	510	—	510	395	115	395	—	242.65	267.35	4,585.66
1921	510	115	625	439	186	439	—	229.28	280.72	4,304.94
1922	510	186	696	625	71	625	—	215.25	294.75	4,010.19
1923	510	71	581	1	580	1	—	200.51	309.49	3,700.70
1924	510	580	1,090	726	364	726	—	185.04	324.96	3,375.74
1925	510	364	874	874	—	1,312	438	168.79	341.21	3,034.53
1926	510	—	510	195	315	195	—	151.73	358.27	2,676.26
1927	510	315	825	72	753	72	—	133.81	376.19	2,300.07
1928	510	753	1,263	293	970	293	—	115.00	395.00	1,905.07
1929	510	970	1,480	612	868	612	—	95.25	414.75	1,490.32
1930	510	868	1,378	882	496	882	—	74.52	435.48	1,054.84
1931	510	496	1,006	—	1,006	(342)*	—	52.74	457.26	597.58
1932	510	1,006	1,516	—	1,516	(179)*	—	29.88	480.12	117.46
1933	123	1,516	1,639	575	1,064	575	—	5.87	117.46	—

[1] An annual installment of $510 will amortize a $6,400 loan bearing interest at 5 per cent in 20 years. See last three columns above for amortization table.

* Deficit.

A fixed annual installment of $510 will retire a loan of $6,400 bearing interest at 5 per cent in 20 years (columns 8 to 10, Table 3). In order to compare the fixed installment repayment plan (Table 3) with a flexible repayment plan calculations were made on the assumption that an average farmer in the Newfane-Olcott Area obtained a $6,400 loan bearing interest at 5 per cent in 1913 on a repayment plan providing that the total net family income would be applied each year in payment of interest and reduction of principal until such time as the loan was paid in full. The results are shown in Table 4. Instead of being delinquent during 17 of the 21 years, the borrower's loan would have been completely paid off in 14 years and during the period his loan was outstanding he would have been delinquent only twice.

The difference in the results in the foregoing examples is due primarily, of course, to the fact that during the years immediately after the loan was made, particularly the first year, the net family income was high. Under the flexible repayment plan this resulted in more rapid retirement of the loan. In 1913, for example, a payment of $1,797 was made under the flexible repayment plan whereas

TABLE 4. REPAYMENT RECORD ON A 5 PER CENT LOAN OF $6,400 UNDER A FLEXIBLE PAYMENT PLAN WITH THE PAYMENT EACH YEAR EQUAL TO THE NET FAMILY INCOME PER FARM IN THE NEWFANE-OLCOTT AREA OF WESTERN NEW YORK DURING THE PERIOD 1913–1933

Year	Interest Payment Due			Amount paid	Unpaid interest	Paid on principal	Unpaid balance of loan	Memoranda	
	Accrued interest for current year	Unpaid interest from previous year	Total amount due					Net family income	Amount available for other purposes
							$6,400.00		
1913	$320.00	—	$320.00	$1,797.00	—	$1,477.00	4,923.00	$1,797.00	—
1914	246.15	—	246.15	87.00	$159.15	—	4,923.00	87.00	—
1915	246.15	$159.15	405.30	407.00	—	1.70	4,921.30	407.00	—
1916	246.06	—	246.06	627.00	—	380.94	4,540.36	627.00	—
1917	227.02	—	227.02	776.00	—	548.98	3,991.38	776.00	—
1918	199.57	—	199.57	915.00	—	715.43	3,275.95	915.00	—
1919	163.80	—	163.80	531.00	—	367.20	2,908.75	531.00	—
1920	145.44	—	145.44	395.00	—	249.56	2,659.19	395.00	—
1921	132.96	—	132.96	439.00	—	306.04	2,353.15	439.00	—
1922	117.66	—	117.66	625.00	—	507.34	1,845.81	625.00	—
1923	92.29	—	92.29	1.00	91.29	—	1,845.81	1.00	—
1924	92.29	91.29	183.58	726.00	—	542.42	1,303.39	726.00	—
1925	65.17	—	65.17	1,312.00	—	1,246.83	56.56	1,312.00	—
1926	2.83	—	2.83	59.39	—	56.56	—	195.00	$136.61
1927	—	—	—	—	—	—	—	72.00	72.00
1928	—	—	—	—	—	—	—	293.00	293.00
1929	—	—	—	—	—	—	—	612.00	612.00
1930	—	—	—	—	—	—	—	882.00	882.00
1931	—	—	—	—	—	—	—	[a](342.00)	—
1932	—	—	—	—	—	—	—	[a](179.00)	—
1933	—	—	—	—	—	—	—	575.00	575.00

[a] Deficit.

under the fixed installment plan only $510 was paid. We must conclude, therefore, that even if the lender had been able in 1913 to forecast with complete accuracy the average amount of the farmer's net family income over a 20-year period, a loan providing for a fixed annual installment equal to the average net family income would not have served the borrower, and perhaps in this particular instance the lender, as well as a loan providing for flexible payments based on the borrower's ability to pay as measured by net family income. This would have been true even if the fixed annual installment had been substantially less than the average net family income for the period.

It is again emphasized that the figures presented apply only for a particular area and for a particular period. A different sequence of high- and low-income years would have given different results. To illustrate this point repayment records under the two plans were calculated assuming the sequence of years had been reversed. In other words, it was assumed that 1933, 1932, 1931, etc., were the

years immediately following the making of the loan. On the basis of these assumptions there is little difference in the status of the two loans at the end of the 21-year period. Under both plans the loan would have been paid in full in the twenty-first year. Under the flexible repayment plan, the borrower would have had $11.32 left for other purposes after the twenty-first payment had been made, as compared with $879 under the fixed plan of repayment.

It is evident from the foregoing that the time of incurring indebtedness has a great deal to do with the amount repaid during a given period of years under any plan. If several good years occur immediately after a loan is made, the chances of successful repayment probably will be increased under the flexible payment plan simply because the borrower would be forced to cut down his indebtedness by the full amount of his increased income, while under the fixed amortization plan the borrower would have this excess to spend as he pleased. However, if several bad years occur immediately after a loan is made there is no assurance that the borrower will make any greater progress in a given period of time in getting out of debt under one plan than under the other. As a matter of fact, in the above example in which the sequence of years was reversed, either plan of repayment would have required the borrower to apply the full amount of the net family income each year toward retirement of the loan with the exception of two years under the fixed payment plan.

Although the loan would not have been paid off any faster under the flexible payment plan than under the fixed payment plan, assuming the sequence of years to have been reversed, the borrower's delinquency record would have been substantially better under the flexible payment plan than under the fixed payment plan.[4] Assuming that under a flexible repayment plan the amount of the

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[4] In interpreting the data presented, it should be kept in mind that the fixed installment of $510 in Table 3 was selected because it represented the approximate average net family income in the Newfane-Olcott Area for the period 1913–1933. Since farm expenses and cash living expenses were deducted from farm receipts in determining net family income, the latter item presumably would represent the amount available to the farm family for savings and the retirement of indebtedness.

The amount assumed to have been loaned ($6,400) in Table 4 was determined on the basis of the fact that an annual payment of $510 will amortize a $6,400 loan bearing interest at 5 per cent in 20 years. In other words, if the actual net family income each year during the period 1913–1933 had been equal to the average net family income for the entire period, the borrower's payment record under the two plans would have been identical since in each year the borrower would have had the necessary amount to meet the installment on his $6,400 loan. The difference in the repayment records is, therefore, due to the variation in the net family income from the average. It is of interest to note that the average value of land and buildings per farm in the Newfane-Olcott Area, as reported by the operators, during the three-year period 1913–1915 was approximately $16,000, so that a loan of $6,400 would have represented 40 per cent of the average value per farm.

If an annual installment of less than $510 had been determined upon and the amount loaned reduced accordingly, the borrowers' delinquency records under the two plans would, of course, have been different although the general relationships between the two repayment plans would have been the same. Since we are primarily interested in the relationships of the repayment records under the two plans, the *average* net family income appeared to be a satisfactory figure to use in determining the amount of the fixed annual installment under one plan and, indirectly, the amount to be loaned under the flexible repayment plan. It should be made clear, however, that the figures presented here as to the delinquency which would have occurred under the two plans bear no necessary relationship to the experience of lenders in the Newfane-Olcott Area except in a purely relative sense.

payment varies directly with the borrower's debt-paying ability it seems clear that his repayment record is likely to be better in almost every instance than if he is required to make a fixed annual payment on his loan. He is likely to be delinquent on fewer occasions even if interest is required at a minimum payment and the chances are in favor of the loan being repaid in full at an earlier date. The principal exceptions to this general rule would appear to be in cases where there is only a small variation from the average in the amount available to the farmer each year for debt service or instances where the loan is so small in relation to the debt-paying ability that even in poor years there would be sufficient income to meet the fixed payment. Even in the latter instance, the loan would be paid off much more quickly under the flexible than under a fixed installment repayment plan.

It appears doubtful whether in actual practice the difference in delinquency records under a fixed versus a flexible repayment plan would be as great as is indicated by the data in Tables 3 and 4. These figures make no allowance for the accumulation of savings in good years under the fixed installment plan nor do they take into consideration the possibility of reducing both farm and living expenses during any one year or even during a short period of years in order to meet debt service charges. Both of these are important factors in determining the manner in which farmer-borrowers actually do meet their obligations.

Difficulties in Measuring Changes in Farmers' Debt-Paying Ability

In the foregoing discussion, net family income (farm receipts less expenses less family living) was used as a measure of debt-paying ability. However, the task of assembling and analyzing the necessary data to determine net family income even on a sample basis is likely to prove extremely burdensome and in many instances so expensive as to be prohibitive. This raises the question as to whether some other satisfactory measure of debt-paying ability may not be found which is easier and less expensive to determine.

A basic installment representing the appraiser's best estimate of the farmer's average debt-paying ability over a period of years might, for example, be varied according to changes in the United States farm price index; changes in the farm price index for the state in which the farm is located; prices of particular commodities in specialized crop areas; receipts from the sale of principal farm products for a particular state or area; the value per acre of important crop or crops in a particular area; or prices of farm products

adjusted for changes in the prices of commodities purchased by farmers. The basic payment might also be varied according to changes in average receipts less expenses for sample farms in a particular area; receipts less expenses for a particular farm or average net family income for sample farms in a particular area.

Another method would be to require a payment equal in value to a fixed proportion of the principal crop or crops grown on each farm; a fixed quantity of the principal crop or crops grown; a fixed percentage of net family income for the particular farm; or the landlord's share of the net farm income. Any of the foregoing bases which involve the collection of income and expense data are, of course, open to the objection previously raised, namely, that they are likely to prove too cumbersome and expensive to be practical.

The shortcomings of some of these suggested bases of varying payments are obvious. Composite price indexes, either for the United States or for a particular state, might be entirely unrepresentative of the ability of particular farmers or of farmers in a particular area to make payments. Furthermore, payments adjusted for changes in prices only would fail to take into consideration variations in yields or the fact that prices and costs frequently get far out of adjustment.

Prices of particular crops vary even more widely from year to year than composite indexes and get further out of line with costs; prices may be high because of crop failure in important producing areas.

Total farm receipts or receipts from the principal crop or crops, for a given year may bear little relation to costs. Furthermore, because of wide variations in yields between farms in even very limited areas it would be almost necessary in many areas to obtain data for individual farms. In addition, during the term of a 35-year loan, shifts in type of farming might result in a complete change in the main source of income for a particular farm.

Farm receipts less expenses, either for a particular area or farm, would not allow for changes in living costs not to mention the fact that such data are ordinarily unavailable and that the costs involved in their compilation each year would be extremely high.

Crop share plans have been suggested because they have long been in use over wide areas as a basis for operation of farms by tenants. Such a plan is well adapted to situations in which the mortgagee is a resident of the community in which the farm is located and is in a position to keep in close touch with the facts concerning crop yields, acreages and prices received by the bor-

rower as well as to know his capabilities and peculiarities. However, I am of the opinion that it is an over-simplification of the problem to assume that because a crop payment plan is well adapted for use by individual mortgagees that it will prove satisfactory in the case of institutional lenders operating over large areas such, for example as life insurance companies, or the Federal land banks. It would be impossible, except at a cost which would frequently be excessive, for such an institution to provide the supervision and give the close attention to each individual borrower which is given in many cases by the individual mortgagee who has sold a farm on a crop payment basis.

Payments based on a fixed quantity of the principal crop or crops would vary directly with the prices of the products concerned and therefore would be subject to the same limitations as mentioned above for price indexes.

The landlord's share of net farm income, if available, would probably prove reasonably satisfactory although it could not be accepted without question. Before assuming that this share would repay the loan, it would be necessary to know, for rather limited areas, something about the progress which tenants have made in acquiring ownership of farms under the typical landlord-tenant division of farm income.

The choice of measures of debt-paying ability would have considerable influence on the amount of payment called for from year to year (Table 5 and Figures 2 to 6). In this table and series of charts, net family income is included on each as a basis of comparison. There is little relationship between variations in the price indexes and in net family income. The same is true for prices and yields of apples and peaches. Receipts from apples and peaches and receipts from all sources tend to move together rather closely and they follow net family income much more closely than any of the price series but there are some important exceptions, as in 1920–22. In addition, receipts were less variable than net family income. As would be expected, receipts less expenses (exclusive of family labor) follow net family income much more closely than any of the other series. The landlord's share of the net farm income followed practically the same course as receipts less expenses.

To summarize, it may be stated that none of the indexes intended to reflect changes in farmers' debt-paying ability which were investigated would have proven very satisfactory for the Newfane-Olcott Area during the 21-year period 1913–33 except those for which the collection of the basic data and the calculation of the index would have been both difficult and expensive. A flex-

TABLE 5. SOME POSSIBLE MEASURES OF CHANGES IN FARMERS' DEBT-PAYING ABILITY IN THE NEWFANE-OLCOTT AREA OF NIAGARA COUNTY, WESTERN NEW YORK STATE, 1913–1933[1]
(1915–13 = 100)

Year	Farm prices		Farm prices of apples and peaches[2]	Yields per care of apples and peaches[2]	Receipts from apples and peaches	Receipts from all sources	Farm expenses	Farm receipts less expenses	Landlords share of farm income	Net family income[3]
	United States	New York								
1913	101	97	120	113	169	147	114	184	180	235
1914	101	103	98	83	67	68	90	44	46	11
1915	98	100	84	104	84	85	95	72	73	53
1916	118	116	102	73	91	88	82	96	95	82
1917	175	170	142	71	111	118	117	117	117	102
1918	202	186	202	65	115	132	124	139	138	120
1919	213	206	245	35	90	120	118	119	119	70
1920	211	217	129	124	169	176	220	113	119	52
1921	125	144	223	43	109	117	133	94	96	57
1922	132	134	102	107	121	149	176	108	112	82
1923	142	142	125	59	78	101	133	58	62	0.1
1924	143	128	155	60	103	125	130	117	118	95
1925	156	147	132	100	134	172	172	167	168	172
1926	145	156	90	85	83	123	158	74	80	26
1927	139	151	189	31	65	98	126	63	67	9
1928	149	153	130	51	74	102	124	82	84	38
1929	146	157	176	62	113	132	138	107	129	80
1930	126	140	122	108	133	143	155	126	128	115
1931	87	102	61	84	56	80	128	17	23	−45
1932	65	72	58	104	70	77	118	24	30	−23
1933	70	77	99	77	75	95	102	87	87	75

[1] Farm prices for the United States and New York State from *Farm Economics*, October, 1937, published by Cornell University. Basic data as to prices, yields, receipts and expenses supplied by Professor G. P. Scoville of the Department of Agricultural Economics and Farm Management, Cornell University. Landlord's share of farm income estimated by writer on basis of data available for the years 1928 and 1934. It was estimated that the landlord received 42 per cent of the income and paid 40 per cent of the expenses, exclusive of labor.
[2] Weighted averages.
[3] Farm receipts less expenses less estimated family living costs.

FIG. 2. Indexes of farm prices in the United States, in New York State, and net family income in the Newfane-Olcott Area, New York, 1913 to 1933.

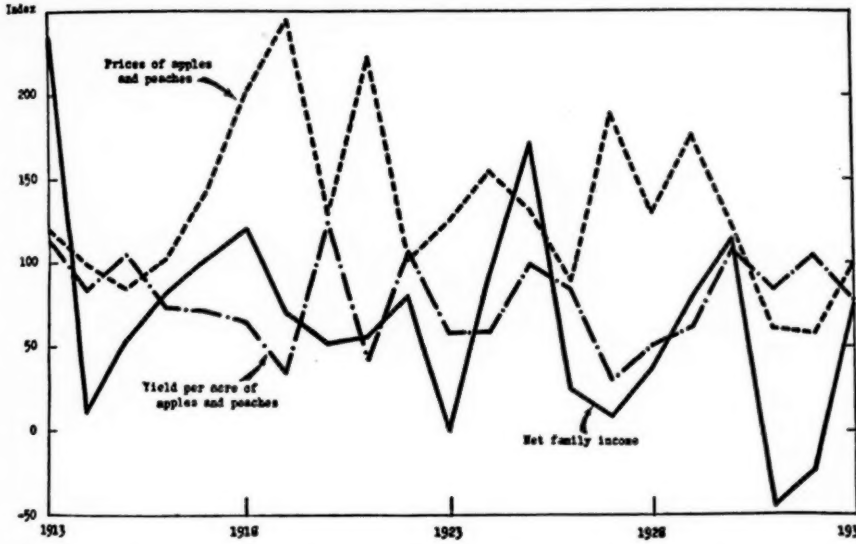

Fig. 3. Indexes of prices of apples and peaches, yield per acre of apples and peaches, and net family income in the Newfane-Olcott Area, New York, 1913 to 1933.

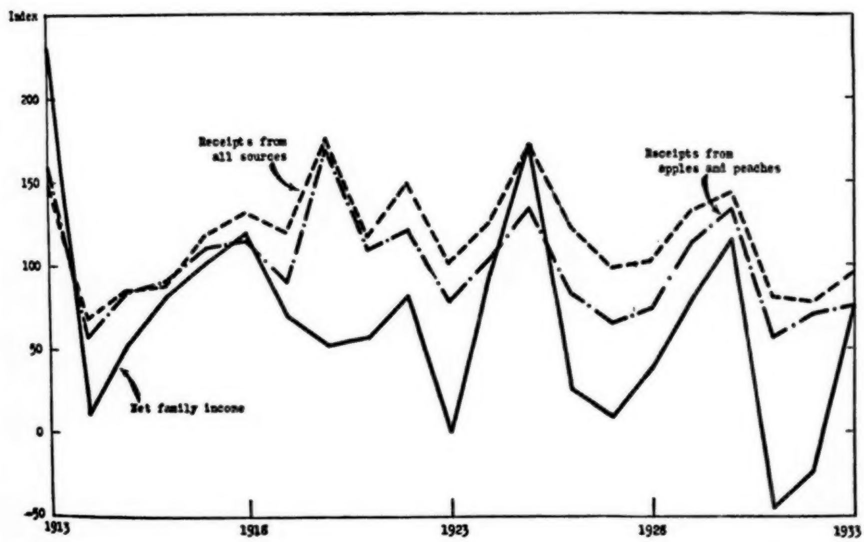

Fig. 4. Indexes of receipts from apples and peaches, receipts from all sources, and net family income in the Newfane-Olcott Area, New York, 1913 to 1933.

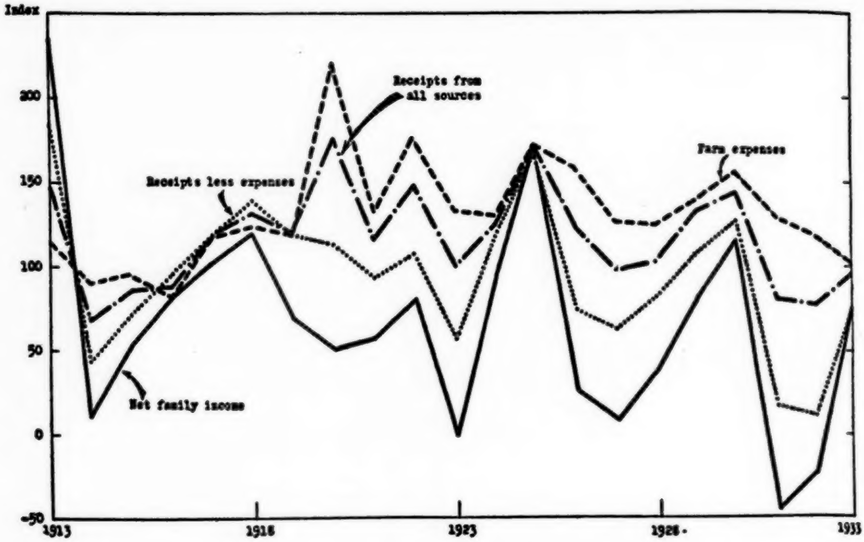

FIG. 5. Indexes of receipts from all sources, farm expenses, receipts less expenses, and net family income, Newfane-Olcott Area, New York, 1913 to 1933.

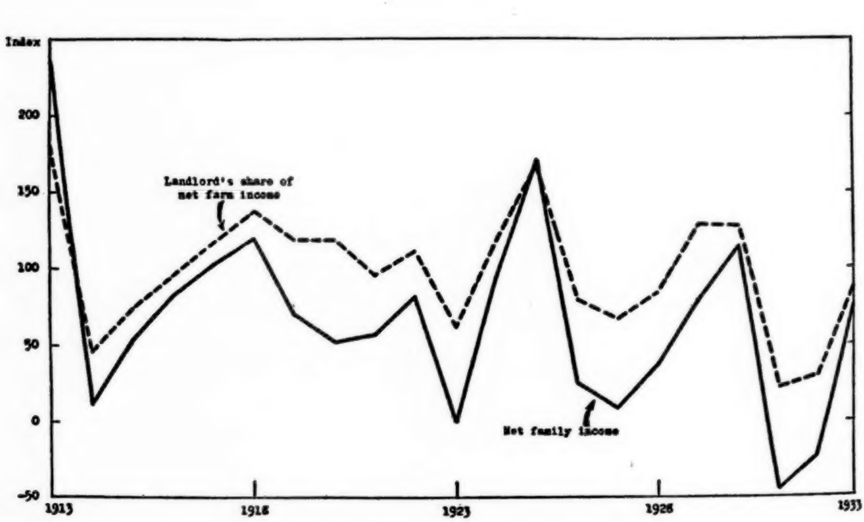

FIG. 6. Indexes of landlord's share of net farm income and net family income, Newfane-Olcott Area, New York, 1913 to 1933.

ible repayment plan involving the use of a basic installment adjusted by such of the indexes as were readily available would have offered little or nothing in the way of improvement over a fixed payment plan from the borrower's standpoint, while it would have added considerably to the lender's operating expenses. The determination of net family income, which provides the best basis for measuring variations in debt-paying ability would be too expensive to be practical in this area since even a sampling process would be difficult and expensive to apply because of the extreme variations in farming returns in the area due to differences in soils and other factors (Table 6). The same difficulty would apply in the case of such measures as receipts less expenses, receipts from apples and peaches, receipts from all sources and the landlord's share of the net farm income. While it is recognized that farm to farm variations in income are extremely great in this area, it is submitted that such variations are greater in most areas than is commonly supposed by persons who have not had occasion to study variations in farming returns over a period of years.

The above comparisons between measures of debt-paying ability are based on data for one area and for one particular period. They merely indicate the differences which would have obtained under that particular set of circumstances. It is quite probable that for other areas relationships for the same period would have been quite different. It is also quite probable that the relationships would have been different for this same area during a different period. Variations in such relationships can be determined only by the accumulation and analysis of additional data. More studies of this kind should be made, it seems to me, before undertaking any large scale program of writing mortgages on a flexible repayment basis.

Administrative Problems

Any repayment plan must be such that the amount due and the method of applying the amount received are determinable. The plan should be easy to understand. It should set forth the amounts to be paid each year or a simple formula for determining such amounts. If the operating costs of the lending institution are to be kept at a minimum, which cost must in the long run be covered by the interest rate charged borrowers, the plan must not be expensive to administer either with respect to determining amounts due, the mechanics of handling billings and collections or the enforcement of collection through foreclosure where, as a last resort, foreclosure is the only alternative.

If a plan involves heavy administrative costs to a lending insti-

TABLE 6. FREQUENCY DISTRIBUTION OF LABOR INCOME IN THE NEWFANE-OLCOTT AREA, NIAGARA COUNTY, NEW YORK*

Labor Income	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923
−$1000 or less	1	21	12	3	2	3	14	20	23	20	36
− 500 to −1000	2	20	10	7	7	7	10	18	23	19	30
0 to − 500	11	32	22	20	21	21	29	33	39	39	50
0 to + 500	14	22	22	27	37	48	48	42	37	43	39
+ 500 to +1000	17	3	7	16	22	27	18	29	18	22	23
+1000 to +1500	15	1	5	8	11	23	12	16	13	16	7
+1500 to +2000	10		3	7	5	14	6	3	4	7	5
+2000 to +2500	6				4	7	4	8	5	2	2
+2500 to +3000	7				0	1	4	3	1	2	1
+3000 to +4000	1				2	3	5	4	5	6	1
+4000 to +5000	4				0	1	3	0	2	2	
+5000 to +Over	1				2	4	3	2	1		
Totals	89	99	81	88	113	159	156	178	171	178	194

Labor Income	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934
−$1000 or less	18	10	32	35	23	19	15	40	20	4	4
− 500 to −1000	20	6	30	31	26	17	16	34	30	17	9
0 to − 500	42	17	42	47	43	30	35	58	62	32	35
0 to + 500	44	29	45	28	25	34	23	10	16	24	32
+ 500 to +1000	32	38	24	15	13	18	13	10	8	19	23
+1000 to +1500	18	25	6	4	8	14	13	1	2	3	8
+1500 to +2000	11	21	2	6	4	7	10	1	1	5	4
+2000 to +2500	7	10	3	2	1	4	2	2	1	3	3
+2500 to +3000	4	7	2	1	2	3	3			0	3
+3000 to +4000	2	5	1	0	1	2	5			3	1
+4000 to +5000	1	2		0	3	7	0			0	0
+5000 to +Over	3	2		1		1	5			1	2
Totals	202	172	187	170	149	156	140	156	140	111	124

* Furnished by Prof. G. P. Scoville, Department of Agricultural Economics and Farm Management, Cornell University.

tution or forces it to bear all the shocks resulting from fluctuating farm incomes as would be the case, for example, if interest payments were subject to automatic postponement in certain years, such costs must eventually be reflected in higher interest rates charged borrowers.[5] If, to cite an extreme example, the Federal land banks were required to send a group of economists or farm cost accountants into the field to determine annually the amounts due on some 633,000 loans instead of sending bookkeepers to the borrowers' ledgers in the central offices to determine such amounts; or if, to be less extreme, the banks found it necessary to station representatives in each community throughout the country to service their loans, as individual mortgagees living in such communities service their individual mortgages, then the operating margins of the banks must be substantially increased to cover the increased costs which would inevitably result.

As stated earlier in this paper, it is my feeling that the problems which would confront large institutional lenders in attempting to administer a large volume of loans under a flexible repayment plan are frequently underestimated. It does not follow that a crop payment plan or a repayment plan based on the landlord's share of returns from the farm which works satisfactorily where the mortgagee is an individual living in the community would be satisfactory if applied to the 1,089,000 loans held by the Federal land banks and the Land Bank Commissioner. This is not to suggest that such plans might not be applied to advantage in certain limited areas. However, it must be kept in mind that the five-year mortgage or the long-term amortized loan is best adapted for use on a mass production basis. Its terms are simple and its operation is such that costs are held to a minimum in those instances where borrowers are able to meet their obligations. Extraordinary expense involved in granting deferments of principal and extension of interest or other work-out arrangements are confined to the 5 or 10 per cent of all borrowers who in normal times find it impossible during a given year to meet their obligations. Loans of the remaining 90 to 95 per cent of all borrowers are handled on a mass production basis at a minimum cost. To cover this group under a repayment plan involving a cost per loan approximating the present per-loan cost of servicing distressed loans would obviously increase substantially the costs which must be covered by the interest rate charged borrowers generally. It seems to me that this phase of the

[5] In estimating probable operating costs under any plan, consideration must be given to (1) the probable effect of the plan on operating expenses, (2) the probable cost of writing off or granting a postponement of a part or all of the interest payments due in years when farm income is not sufficient to pay interest and (3) the probable effect on costs, if any, of postponing principal payments.

problem gets down to a question of what represents the greatest good for the greatest number. Assuming a sound lending policy and a fair-minded attitude on the part of institutional lenders in cases where borrowers are unable to meet their obligations through no fault of their own, it seems to me that there is a distinct possibility that a general application of a flexible repayment plan might result in a substantially increased cost to a great number of borrowers who would not require its benefits under any conditions; and to another large group of borrowers who would not require its benefits under ordinary conditions. Based on Federal land bank experience, these two groups would include a substantial majority of all borrowers. No type of repayment plan will provide a remedy for situations such as existed in 1932–33 unless it is so drastic as to deprive the mortgagee of practically all of the rights which are generally recognized as his at the present time.

Capital Structure

Time will permit of only a brief reference to other problems which would arise if a lending institution were to embark on a program of making all of its loans on a flexible repayment basis. To the extent that interest is deferred during years in which farming returns are low a lending institution such as a Federal land bank would be faced with the problem of meeting bond interest charges and operating expenses out of a reduced interest income. While a wider operating margin between the cost of borrowed funds and the rate of interest charged farmers would help somewhat, it seems clear that a wider spread would not meet the whole problem and that a stronger capital structure would be required. Stated another way, the ratio of outstanding bonds to capital would need to be kept lower for an institution writing mortgages under a flexible repayment plan than for an institution writing mortgages on an amortization plan calling for a fixed annual installment. This statement assumes, of course, that the first institution is writing mortgages providing for flexible interest payments as well as for flexible principal payments. It may be argued, of course, that interest and principal payments cannot be collected regardless of whether or not they become due under the mortgage contract if the borrower does not have the necessary funds with which to meet his payment. However, it would seem that there would be no incentive on the part of the borrower to find ways and means of paying all or at least a part of the accured interest on the loan if, under the terms of the mortgage contract, such accrued interest does not become due and payable if the share of the crop set aside for debt serv-

ice does not return enough to pay the interest. It must be recognized that there are opportunities for reducing both farm and living expenses during any one year or even over a short period of years and it is by this process that borrowers quite frequently pay the interest on their loans when the income during a particular year is insufficient to cover such payment. Without the incentive to pay, the percentage of interest collections during bad years would undoubtedly be materially reduced. If the lender were a Federal land bank with fixed interest charges to meet on its bonded indebtedness, it would seem probable that it would have to maintain a lower ratio of outstanding bonds to capital in order to meet the interest on its bonded indebtedness and pay operating expenses during years of low farm income.

Summary and Conclusions

(1) In the opinion of the writer, the drastic decline in farm prices and farm incomes after 1929 was primarily responsible for the farm debt situation of 1932–33. While other avenues of approach such as flexible repayment plans may serve to reduce to a degree the extreme acuteness of the problem brought about by the decline in prices, they are not likely to enable us to avoid a 1932–33 situation if prices should again decline as they did during the period 1929–32.

(2) It is the writer's view that a lending policy under which loans are made on the basis of probable earnings over a period of time whether described as lending on normal values or some other term is likely to have a more far-reaching effect in reducing the number of distressed loans over a period of years than would the making of loans on a flexible repayment plan particularly if flexibility is limited to principal only. In any case, the making of loans under a flexible repayment plan does not solve the basic problem of appraisal or the determination of the amount which can safely be loaned. If a mistake is made in the amount loaned, the fact that the loan is made on a flexible repayment plan will not save the situation unless, in effect, the plan provides for a permanent moratorium in case the borrower cannot meet his payments.

(3) Assuming the amount loaned is within the borrower's capacity to pay, his repayment record both as to delinquency and the period within which the loan is paid in full is likely to be better under a flexible repayment plan than under a repayment plan calling for a fixed annual or semi-annual installment. His record under the two plans will depend largely upon the degree of yearly variations in the amount available for debt service and the se-

quence of high- and low-income years. If a number of low-income years follow the making of the loan, there may not be any material difference in the number of years required to pay the loan in full under the two plans.

(4) In the Newfane-Olcott Area of Western New York for the period 1913–33, the only bases of varying payments other than by net family income that were tested and gave reasonably satisfactory results were: (1) receipts less expenses; (2) the landlord's share of the net family income; (3) receipts from apples and peaches; and (4) receipts from all sources. Varying payments according to price indexes would have been unsatisfactory.

(5) The bases of varying payments which would have proven satisfactory would have been both difficult and expensive to apply in this area since they would have involved the making of more or less detailed farm business surveys on at least a sample basis. As a matter of fact, because of the wide variations in farming returns within the area, a sampling process would have been both difficult and expensive to apply.

(6) It seems evident to the writer that the administrative cost to the lending institution of administering loans made on a flexible repayment plan would be substantially higher than if loans are made on a fixed payment plan. The amount of the extra cost will, of course, differ with the repayment plan in the area in which it is applied. This, of course, allows no credit for such ultimate losses as might be avoided by adopting a flexible payment basis if it should prove true that the losses would be less. This is a difficult point to establish one way or the other. If the contention that the cost of administering loans made on a flexible repayment basis would be greater than administering loans on a fixed payment plan is correct, then such costs must eventually be borne by the borrower in the form of higher interest rates.

(7) Presumably when a lender accepts a relatively low interest rate, one of the principal considerations is the certainty and regularity which he anticipates in the income from his investment. If the lender rather than the borrower is forced to make all of the necessary adjustments arising from fluctuations in farm prices and incomes, then it is to be expected that he would demand a charge for the service in the form of a higher rate on his investment. If a borrower is to obtain a loan on the most favorable terms, the loan must be reasonably conservative considering both average earnings and variations in earnings and the borrower must take the responsibility for making savings in good years with which to meet his payments in poor years. This is not to say that flexible

repayment plans may not be desirable in limited areas where incomes are highly variable even though administrative costs are high. The costs of servicing loans in such areas is likely to be high in any case and may not be materially higher under a flexible than under a fixed payment plan. The additional costs in such areas are borne by borrowers generally if all loans are made at the same interest rate and amount to an indirect subsidy to the borrowers in such areas.

(8) From the standpoint of an organization lending on a nation-wide basis such as the federal land banks, it would seem that the problem should be considered from the standpoint of what constitutes the greatest good to the greatest number in normal times. Long-term amortized loans with pre-determined repayment schedules are best adapted to a mass production basis of operation. If such a plan will meet the needs in normal times of 90 to 95 per cent of all borrowers, it would seem preferable to handle the remaining 5 to 10 per cent on a case basis rather than to give and charge the 90 to 95 per cent of all borrowers for a service they do not need. (1) In the writer's opinion, the plan which I understand certain of the life insurance companies are putting into effect and which the Federal land banks will put into effect under authority of the Farm Credit Act of 1937 provides the only practical solution to the problem. Under this plan, borrowers will be encouraged to make extra payments in good years which can be used in years of low income to meet the installments (interest or principal or both) on their loans. The practical effect of this plan is merely to establish a savings account with the lender. If the borrower fails to take advantage of the plan in good years or if he has a series of crop failures immediately following the making of his loan, the plan will, of course, be ineffective. Again we are back to the problem of what constitutes the greatest good for the greatest number. In the writer's opinion, a plan such as this which places upon the borrower the responsibility for making savings for a rainy day and which does not load the lending institution up with excessive costs which must eventually be passed on to borrowers generally will enable the great majority of all borrowers to obtain their mortgage credit needs at a substantially lower cost than if lenders were to attempt to make loans on a flexible repayment plan in order to take care of the relatively small percentage of all borrowers who in normal times cannot for one reason or another meet their obligations.

PLACE OF COMMERCIAL BANKS IN AGRICULTURAL FINANCE

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BUREAU OF AGRICULTURAL ECONOMICS

The subject assigned for this paper is so broad that obviously it will be necessary to limit the discussion to certain aspects of the problem. The striking changes that have taken place in the banking situation since 1920, which make it particularly appropriate to reappraise the functioning of commercial banks in the field of agricultural finance, will be briefly reviewed. In addition, it is proposed to confine the scope of this paper to a brief discussion of three major aspects of the functioning of commercial banks in agricultural financing: First, the services performed by banks in agricultural areas and some of the costs involved in rendering such services; second, the future functioning of commercial banks as influenced by the competition of the federally sponsored credit agencies; and third, the influence of commercial bank loan policies upon the economic stability of agriculture.

According to a survey made at the end of 1934, approximately 84 per cent of all insured commercial banks are located in places of less than 15,000 population, and 74 per cent of the agricultural loans of all commercial banks are held by banks located in such population centers.[1] Hence the functioning of commercial banks in the field of agricultural finance resolves itself primarily into a consideration of the problem of commercial banks located in the smaller centers, the so-called country banks.

Since 1920 there has been a drastic reduction in the number of banking institutions serving agricultural communities. In the period from 1921 through 1936 there were 12,378 bank suspensions in places under 10,000 population, largely in agricultural communities. This reduction was equivalent to slightly more than 50 per cent of the number of banks in operation on June 30, 1920 in such towns or cities. While the number of banking institutions was being rapidly reduced, there was also a sharp decrease in the volume of outstanding agricultural loans held by operating commercial banks.

In 1920 and the years immediately preceding, commercial banks were the most important institutional source of farm-mortgage credit. At the end of 1920 loans secured by farm real estate held by operating commercial banks were estimated at $1,447,483,000. By the end of 1936 this total had decreased to

[1] Wall, N. J., "Agricultural Loans of Commercial Banks," U.S.D.A. Technical Bulletin 521, p. 38.

$487,534,000. In the first half of 1937 such loans increased slightly more than 3 per cent. With the competition of the Federal Land Bank System and the active lending operations of life insurance companies, it is highly improbable that commercial banks will regain their former importance as a source of farm-mortgage credit. However, a distinct field still remains open in farm-mortgage financing which country banks no doubt will continue to develop. Farm-mortgage loans in small amounts when handled by the federal land banks and other large lending agencies involve relatively high costs, such as those involved in appraisals, that remain relatively fixed regardless of the size of the loan. Loans on farm property whose owners are not eligible for federal land bank loans also afford an outlet for commercial bank loan funds. Many borrowers prefer to borrow for intermediate terms on farm-mortgage security to obtain the lower rate that usually prevails on such loans in comparison with the rates on personal and collateral loans. An expansion in real estate loans of these types therefore can be expected over the next few years. In some of the Midwest States commercial banks have been showing a gradual expansion in their farm real estate loan holdings since 1934, despite the lack of growth since that date in such loans for all banks in the country as a whole.

Personal and collateral loans also have shown marked changes in the outstanding volume of such advances. At the end of 1920 the amount of personal and collateral loans to farmers held by commercial banks was estimated at $3,869,891,000. By the end of 1936 such loans had decreased to $593,614,000, or less than one-sixth of their 1920 peak. During the first half of 1937 there was an increase of 22 per cent in the outstanding amount of these loans, the first significant increase to occur in any recent year, bringing the total at June 30, 1937 to $726,400,000. On the latter date such loans were about 10 per cent higher than a year earlier.

Despite the improvement that has taken place in farm income since 1933, the personal and collateral loans of commercial banks failed to increase until the first half of 1937. Prior to the price decline in 1929 commercial banks had a large volume of loans that would have been liquidated within a reasonable period of time had farm commodity prices remained stable. The sharp drop in farm prices and farm income, however, made it necessary for banks to extend and carry over such loans, at least in part, until the ability of their borrowers to repay had improved. In the earlier years of the recovery, therefore, these carry-over loans had to be liquidated out of current income, and the total outstanding volume

of loans tended to decrease. As there already has occurred such a sharp reduction in outstanding personal and collateral loans, arising largely from the liquidation of these carry-over loans, it may be expected that over the period of the next few years such loans should experience a substantial expansion. Rising production costs and the need of replacing equipment and restocking livestock herds will likely be important factors contributing to this increased demand for agricultural credit.

The experience of the last decade and a half emphasizes the need for a continuing source of credit for farmers. If agriculture is to function efficiently, it is desirable, of course, that credit facilities should be available at all times to permit the development of the most effective program of agricultural operations. The large number of bank suspensions and waves of deposit withdrawals from 1920 to 1933 indicated the inadequacy of individual country banks, during this period, as a continuous source of credit for farmers. In looking toward the future we are obviously concerned with the development of credit facilities which will assure the carrying out of agricultural production programs unhampered by credit difficulties.

Fortunately, several developments have already taken place which should minimize in the future, the possibility of serious credit disturbances such as occurred from 1920 to 1933. Through operation of the Federal Deposit Insurance Corporation depositors are given insurance coverage which should tend to prevent the breaking down of country bank facilities by abnormal deposit withdrawals. The existence of a system of production credit associations sponsored by the Farm Credit Administration gives a greater flexibility to the entire agricultural financing structure, so that if country banks are confronted by an abnormally extended position, a part of this load may be shifted to the credit associations. As the result of the reduction, by over one-half, in the number of banks serving agricultural communities, those that now remain in operation should tend to be financially stronger, because of larger average resources, than the average bank of the 20's. At the same time, the average management of existing institutions is likely to be of higher caliber than in the earlier period because of the elimination of the weaker elements in the management of country banks resulting from the large number of bank suspensions. In the rapid expansion in the number of banks from 1900 to 1920, when the number of such institutions increased from 10,382 to 30,139,[2] it is obvious that it was difficult to staff the new

[2] Statistical Abstract: 1933, U. S. Department of Commerce, p. 234.

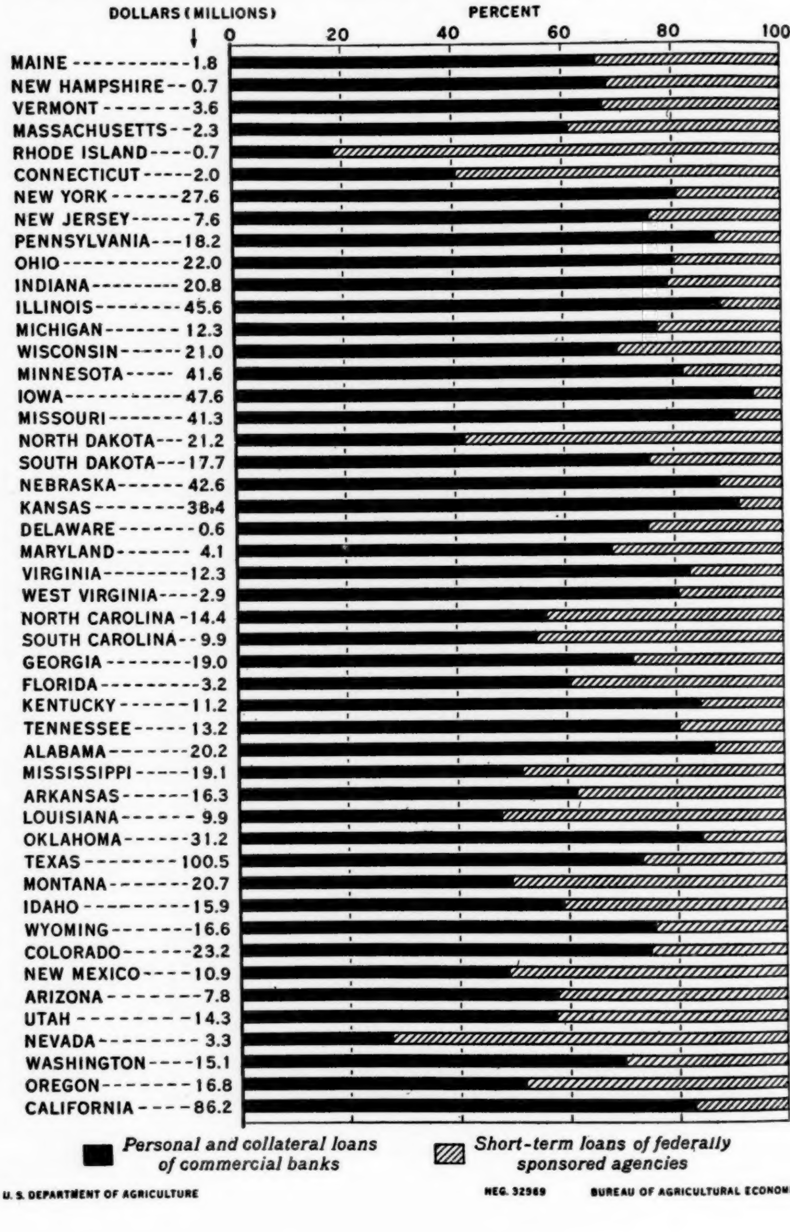
institutions with seasoned, trained personnel. As a consequence, the management of a large proportion of our country banks at the beginning of the difficult period that followed 1920 was in the hands of personnel who had gained their banking experience in a period of almost continuous advancing price levels. In the years ahead it is probable that the number of banking institutions will show only a slow growth, making it possible to draw upon personnel who have been trained to realize the implications of unstable economic conditions in relation to the solvency of commercial banks.

With considerable added protection against a recurrence of the major difficulties which, in the past, accounted for the curtailment of credit facilities for farmers, we may turn to a consideration of the functioning of the country bank in meeting agricultural financing needs.

Country banks are, and will likely continue to be, the most important institutional source of short-term credit for farmers. In providing checking-account services, savings facilities, and other incidental financial services, the country bank is usually in close touch with the affairs of its farmer customers. The close personal relationship which characterizes this situation makes the procedure of securing credit accommodation a comparatively simple one. With its close knowledge of individual borrowers, the country bank is in a position to make a large proportion of its loans on an unsecured basis. At the end of 1934, 43 per cent of the personal and collateral loans made to farmers by commercial banks were unsecured.

The importance of the country bank as a source of agricultural credit is emphasized by the limited market which is available to the farmer in seeking a loan. The large corporate borrower, in addition to bank loans has recourse to a wide range of methods for obtaining financing, such as the issuance of common stock, preferred stock, bonds, commercial paper, and acceptance credits. The individual farmer, on the other hand, although he may have, proportionately, the security and credit rating that would justify an interest rate as low as that obtained by the large corporation in the central money market, is limited, with certain exceptions, to the lending resources within his own community. Because the individual farmer's loan requirements are usually small and because he is not known beyond his own community, outside lenders, other than those federally sponsored agencies which have been established to finance specific types of credit needs, ordinarily are not equipped to make loans at a reasonable cost to the farmer.

PERSONAL AND COLLATERAL LOANS OF COMMERCIAL BANKS AND SHORT-TERM LOANS OF FEDERALLY SPONSORED AGENCIES, JUNE 30, 1937



U. S. DEPARTMENT OF AGRICULTURE NEG. 32969 BUREAU OF AGRICULTURAL ECONOMICS

Where the farmer's credit needs can be converted into a standardized obligation which can be used in obtaining funds from the central money markets, the limitations of his own community's resources are, of course, to a large extent removed. This has been done in the case of the Federal Land Bank System, where the individual farmer's mortgage serves as collateral for the issuance of bonds which have a wide market. The functions of the production credit associations have been directed along much the same lines. In this case chattel mortgages and crop liens of the individual farmer are transferred to a central agency, the federal intermediate credit bank, to serve as collateral for standardized debentures issued in the central money market. The wide range of credit needs of the individual farmer, however, are not subject to sufficient standardization to enable the production credit associations fully to meet all of his requirements. In providing loan facilities for farmers, the production credit associations must be assured of a sufficient volume of loans to provide income, from the 3 per cent margin which it is permitted to add to the federal intermediate credit bank discount rate, for defraying costs of making and collecting loans and for setting up reserves for possible losses. The extent to which associations in different types of farming areas can maintain and increase the volume of their business, however, will be influenced by the level of interest rates charged by country banks competing for business in their loan territories.

Distinct regional differences in the levels of interest rates charged on agricultural loans other than on farm real estate are shown in a survey of such rates charged by member banks of the Federal Reserve System as of October 1, 1936.[3] These data are based on the most common rate charged on the largest volume of agricultural loans. On this basis, rates were lowest in the Northeastern States and highest in the West South Central States of Oklahoma and Texas. Six per cent interest was the most common rate in the former group of states and in an additional area, extending south to include North Carolina and Tennessee, and bounded on the west by Missouri, Iowa, and Wisconsin, but excluding Michigan. Seven per cent was the most common rate in Michigan, Minnesota, North Dakota, California, and South Carolina. In all the other states except Oklahoma and Texas, where the interest-rate level was 10 per cent, a rate of 8 per cent prevailed. The rates quoted from this survey, which apply to the largest volume of loans made at different interest rates, are a fairly close approxima-

[3] Federal Reserve Bulletin, April, 1937, and mimeographed tabulations supplied by Board of Governors of the Federal Reserve System.

tion of the regional differences in the average interest rate paid on all personal and collateral loans, as indicated by previous surveys of interest rates charged by commercial banks, conducted by the Department of Agriculture.

These regional differences in the levels of interest rates charged by commercial banks on loans to farmers raise several questions as to the factors accounting for such variations. While it is not possible to give an exact quantitative measurement of these various influences, there are several factors related to the supply of loanable funds and to the cost of providing loans which may be pointed out as affecting the interest-rate level as between different regions.

In providing both deposit and loan facilities, the country bank, if it is to continue in operation, must be recompensed for the services which it performs. In the long run, this compensation must include earnings sufficient to cover salaries and other operating expenses, risk, and a normal rate of return on the stockholders' invested capital. The costs of rendering these services are not subject to great variation and are, therefore, an important factor contributing to the relative rigidity of the level of interest rates charged by country banks. The income of the individual bank, of course, arises chiefly from the interest received on its loans and investments. The net earnings from this source, however, are influenced by the amount of its time and savings deposits and the margin between the rate of interest paid on such deposits and the rate it receives on its loans and investments.

In those communities in which individuals have accumulated savings in the form of time deposits in amounts that are large relative to the volume of demand deposits, the increased supply of funds thus made available to banks is usually accompanied by a lower level of interest rates on agricultural loans than prevails in areas where time deposits are relatively less important. As the customary interest rate on local loans in agricultural communities is, under most conditions, higher than can be realized on short-term paper and investments purchased in the open market, this increase in the supply of loanable funds at the disposal of country banks encourages the individual bank to obtain its maximum proportion of the volume of local loans. This it can do only by granting rates which bear some general relationship to the supply of funds available for making loans in its trade area. If this were not true, the competition of other banks, or possibly the organization of new institutions, would tend to take loans away from the individual bank.

Broadly speaking, then, we can say that in those areas where time deposits are relatively large in proportion to the volume of demand deposits, there will be a tendency for the interest-rate level on loans to farmers to be lower than in areas where time deposits are relatively of less importance. In the West South Central States of Texas and Oklahoma, which consistently have shown the highest level of interest rates on personal and collateral loans, usually in the neighborhood of 10 per cent, time deposits of member banks of the Federal Reserve System have averaged only 12 and 23 per cent respectively of the combined total of demand and time deposits.[4] In comparison, banks in the Midwest States of Michigan, Ohio, Indiana, Illinois, and Iowa, where such interest rates in the past have been more commonly in the neighborhood of 6 and 7 per cent, time deposits have averaged from 45 to 70 per cent of the combined total of demand and time deposits. In the range Mountain States, where interest rates have been almost as high as in the Southwestern States, time deposits have represented only about 40 per cent of total demand and time deposits.

Authority to establish maximum rates of interest payable on time deposits has been given to the Board of Governors of the Federal Reserve System and to the Federal Deposit Insurance Corporation by the amended Federal Reserve Act. As payments of interest on time deposits represent an important item of expense for country banks, the level of the maximum rate set by the federal authorities may have an important bearing upon the future level of interest rates charged by country banks on agricultural loans. If a single maximum rate for the country as a whole is continued, such a rate in many areas likely will be below the level which would otherwise prevail if free competition were permitted to establish the rate. In the areas where banks have loanable funds in excess of local requirements, such a development, unless offset by a shifting, on the part of depositors, of time deposits into other forms of investment or by the granting of increased services to customers of the banks, would likely result in a lowering of interest rates charged on loans.

In addition to the relative proportion of time deposits as a factor affecting interest rates to farmers, the degree of regularity of the flow of income into the community and the rate of its expenditure are factors affecting interest rates. As the degree of regularity of this inflow and outflow of funds determines to a large extent the proportion of its deposit liabilities which must be offset by assets

[4] These percentages, as well as those that follow, are based upon data of member banks located in places of less than 15,000 population and represent the average for the period 1924–29.

bearing a relatively low rate of return such as balances with banks in urban centers, short-term paper, and other outside investments, this factor will influence the earning power of the individual bank. If the inflow and outflow of funds were to be consistently in balance, it would be necessary for the individual bank to maintain only the minimum legal reserve requirements. On the other hand, if the income of the community were to be received only at one time during the year, namely at the marketing season, it would be necessary, obviously, for the bank to hold an extremely large volume of outside assets in order to meet deposit withdrawals that would occur throughout the year. In specialized, one-crop regions, it is necessary for country banks to maintain a much larger proportion of their deposit liabilities in the form of bankers' balances, short-term paper, and other outside investments for the purpose of meeting out-of-community payments than is the case, for instance, in a dairying community where income and expenditures are more evenly balanced throughout the year.

Schwulst, in his study of *The Extension of Bank Credit*, has suggested the principle that the average outstanding local loans of an individual bank should not be in excess of its average deposits.[5] If this principle is adhered to, it is clear that a bank in a community where income and expenditures are fairly evenly balanced throughout the year can have a larger proportion of its average deposits invested in local loans than can a bank in which there is a wide seasonal fluctuation in deposits and where it is necessary to borrow from outside sources during the crop-producing season to meet the adverse balance of community payments. If it is necessary for an individual bank to borrow each season from its correspondents or from the federal reserve bank, the interest paid on such rediscounts or borrowings will naturally add to the cost of supplying the loan service in the community.

Another factor which may influence the future trend of interest-rate levels is the increase in the average volume of deposits carried by banks in agricultural areas. As a result of the drastic curtailment in the number of banking organizations since 1920, it may be expected that those institutions now in operation will have, in the future, higher average deposits than did the average country bank in the 20's. With a larger volume of loanable funds available to the individual banks, there should be a tendency to lower interest rates, unless the greater income received by country banks from the larger average volume of loans is offset by increased services to depositors.

[5] Schwulst, E. B., *The Extension of Bank Credit*, Houghton Mifflin Co., 1927, p. 253.

Competition from Federally Sponsored Agencies

The post-war period, particularly since 1929, has been marked by the expansion in the activity of the Federal Government in providing additional short-term credit facilities for farmers. Included in these activities were the various year-to-year provisions for making seed loans beginning in 1921, the establishment of the federal intermediate credit banks in 1923, loans to individuals for the purchase of stock in agricultural credit corporations and livestock loan companies authorized in 1931, the establishment of the regional agricultural credit corporations in 1932, the establishment of the new system of production credit associations in 1933, and the various types of loans under the rehabilitation programs of the Resettlement Administration, subsequently assumed by the Farm Security Administration.

This expansion in the loan activities of the Federal Government and of federally sponsored agencies naturally raises the question as to the extent of their competition with the agricultural loan activities of commercial banks and the bearing of this competition upon the future financing facilities available to farmers. In making a comparison of the outstanding volume of the loans of the federally sponsored agencies with those of commercial banks, it is desirable to include only those types of short-term loans that are similar in character to those made by commercial banks. In the last several years, the severe economic distress prevailing amongst a large segment of the agricultural population has given rise to a type of advance which ordinarily would not be supplied by institutional lenders. In Finland, the distinction between these two broad types of advances has been recognized by labelling them as economic and social agricultural credits. Under the former category are included all advances, "the terms of which are dictated by general business principles, such as current rates of interest and other loan conditions. Social credit, on the other hand, represents loans granted as a relief measure on terms and conditions fixed irrespective of market conditions according to the economic position of the borrower and the special purpose of the loan, the state undertaking to cover the difference between the current actual rates of interest and the rate at which the loan was granted. The former type of credit is sound economic agricultural credit, while the latter is a form of relief activity, a social political measure."[6]

The "economic" type of agricultural credit supplied by federally sponsored agencies in this country until 1932 was provided by the

[6] Dispatch No. 23 (Diplomatic) of July 24, 1937 from the American Legation at Hilsinki.

agricultural credit corporations and livestock loan companies rediscounting with the federal intermediate credit banks. Prior to 1930, the amount of such loans outstanding did not exceed $60,000,000, or between 2 or 3 per cent of the outstanding volume of personal and collateral loans to farmers, held by commercial banks. With the rapid depletion of the lending resources of country banks immediately following 1929, the loans of agricultural credit corporations and livestock loan companies, chiefly the latter, continued to expand, reaching a peak of about $84,000,000 in August 1932.

Following the establishment of the regional agricultural credit corporations in 1932, the volume of loans from federally sponsored credit agencies increased to a level where they became a significant proportion of the total of personal and collateral loans to farmers. By August 1933, loans of this type reached the level of $231,000,000 and in 1934, during the first year of operation of the production credit associations, a peak of $242,000,000 was reached. Since 1934 there has been a slight decline in the outstanding loans of these federally sponsored agencies, although the peak reached in 1937 was slightly larger than a year earlier, indicated possibly that the earlier downward trend is now being reversed. As indicated in Table I, the slightly downward trend in loans of this character has been due to the composite influence of the liquidation of regional agricultural credit corporation loans, a decline in the outstanding loans of the private agricultural credit corporations, and livestock loan companies, and a substantial expansion in loans of the production credit associations. The expansion in the loans of the latter represent, in part, a taking over of loans previously financed by the other federally sponsored agencies.

Table 1. Outstanding Short-Term Loans of Federally Sponsored Agencies

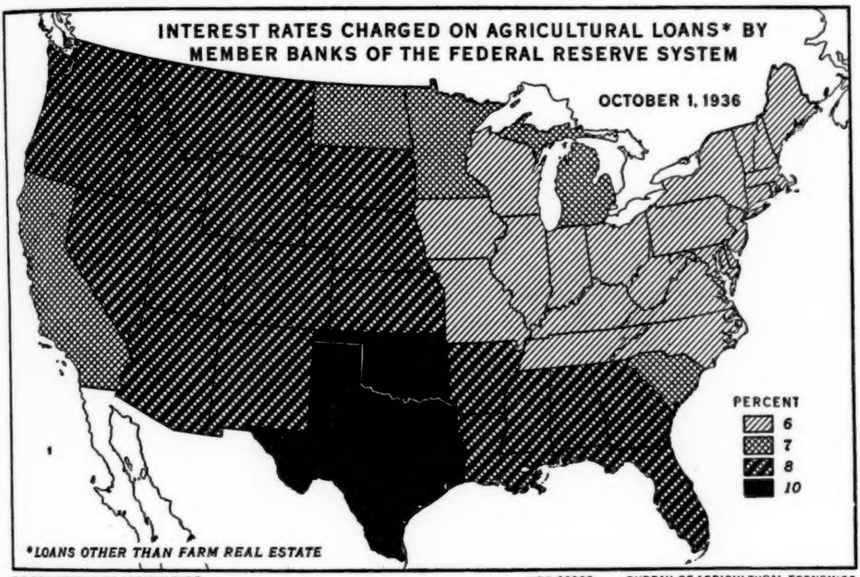
Date	Production credit associations	Regional agricultural credit corporations	Federal intermediate credit banks[1]	Total
	1,000 dollars	*1,000 dollars*	*1,000 dollars*	*1,000 dollars*
Dec. 31, 1934	60,852	87,102	55,672	203,626
Dec. 31, 1935	94,096	43,400	46,490	183,986
June 30, 1936	139,468	36,026	53,231	228,725
Dec. 31, 1936	105,212	25,288	41,017	171,517
June 30, 1937	160,051	22,914	47,337	230,302

[1] Loans and discounts of private financing institutions.

The loans held by federally sponsored agencies on June 30, 1937 were equal to 24.0 per cent of the combined holdings of such agencies and the holdings of commercial banks as compared with 25.7 per cent a year earlier. The proportion held by the federally sponsored agencies had increased from 20.1 per cent at the end of

1934, due to the decline in the volume of personal and collateral loans of commercial banks during that period.

Wide variations in the proportion of such loans held by federally sponsored agencies, as indicated by the data for June 30, 1937, prevails as between various geographic divisions. The highest proportion, 41.9 per cent prevailed in the New England States. The significance of this high percentage, however, is not great in view of the small volume of loans held by the combined agencies. The next highest percentage, 39.2 per cent, prevailed in the Mountain



U S DEPARTMENT OF AGRICULTURE NEG 32928 BUREAU OF AGRICULTURAL ECONOMICS

States. These states also accounted for the largest volume of any geographic division of the loans of federally sponsored agencies. Other geographic divisions having a higher ratio of such loans than the ratio for the country as a whole were the South Atlantic, West South Central, East South Central and Pacific States.

In general the volume of loans from the federally sponsored agencies are relatively most important in the range livestock states and in the cotton growing areas. The proportion of the financing handled by these agencies in specialized fruit and vegetable areas is also relatively large.

With this brief statement as to the present relative importance of federally sponsored credit agencies in supplying the short and intermediate credit requirements of farmers, it may be of interest

to attempt a projection into the future of the probable importance of the federally sponsored credit agencies relative to commercial banks.

It seems fairly clear that the production credit associations will continue to expand the volume of their loans in the range livestock states. The high interest rates on bank loans that have prevailed in the past in these areas have indicated the lack of adequate resources for meeting local loan requirements and possibly, the higher risks involved. Likewise, it has been in these same areas that the private agricultural credit corporations and livestock loan companies, rediscounting with the federal intermediate credit banks have shown the most sustained development.

In the areas where the major portion of the advances of the production credit associations is devoted to the financing of crop production it is also likely that these agencies will continue as a relatively important source of credit. The experience gained in crop financing by these agencies, which has occurred in a period of generally rising trend of farm commodity prices, possibly may not afford a sufficient basis to judge whether or not the 3 per cent margin allowed the associations is sufficient, in all farming areas, to assure the continued operation of these associations over a longer period of years. In the financing of many perishable crops, where changes in supply result in much wider year-to-year variations in price than in staple crops like cotton, the adequacy of the 3 per cent margin in maintaining the continued financial solvency of associations over a period of years is particularly an important consideration. In most other areas of the country, it would appear that the competitive position of country banks is such that they will likely increase in importance as a source of personal and collateral loans to farmers.

During the last few years, when central money market rates have been abnormally low, the rates at which federal intermediate credit bank debentures have been marketed has been sufficiently low to permit production credit associations to make loans at 5 per cent interest. This rate, of course, is lower than that customarily charged by country banks and currently affords a distinct competitive advantage to the credit associations. With the return to a more normal level of central money market rates such as prevailed from 1921 to 1928, it is probable that the rate to borrowers of production credit associations would likely be from 6½ to 7½ per cent. If such a level of interest rates should prevail it is difficult to see how the production credit associations can increase their relative share in agricultural financing in those parts of the

Midwest where country banks usually have a surplus of funds above local requirements for short-term loans.

Despite the fact that it does not appear likely that the federally sponsored credit agencies will increase in importance relative to commercial banks as a source of personal and collateral loans to farmers, the existence of such a system of loan agencies and the policies under which they operate, are likely to appreciably influence credit policies of other lending agencies serving agricultural areas.

In considering the relation of commercial bank loan policies to the economic stability of agriculture, it is obvious that too much credit may be as harmful as too little.

The relatively high capitalization of current farm earnings represented by farm land values over most of the last three decades may well raise the question as to the influence of loan policies of commercial banks, as well as of all other farm-mortgage loan agencies, in supporting this high rate of capitalization. In the steady rise of land values in the late 90's to 1920, when lending agencies were also steadily increasing the amount loaned per acre, it was usually possible for farm operators, who were actually operating in the red, to obtain increased loans to refund their operating losses. Without these increased loans, a large proportion of such operators undoubtedly would have been forced to sell their farms or would have had their mortgages foreclosed. By enabling such operators to refund their operating losses into increased mortgage loans, lending agencies, it would seem, unwittingly decreased the supply of farms that ordinarily would have been offered for sale. By thus decreasing the supply of farms for sale, the supply-demand price for farm land was permitted to rise higher perhaps than would have been dictated by the current earnings of farm land.

In the period immediately preceding the collapse of the boom in farm lands, in 1920, commercial banks had expanded their farm-mortgage holdings at a rapid rate. The credit thus made available for the purchase of farms was undoubtedly a factor in accentuating the rapid rise in land values.

If commercial banks are to be of assistance in contributing to a greater stability in farm land values, it is essential that they refrain from increasing the amounts loaned per acre when land values have reached too high a level. Such a level would be one beyond which it appears that farm earnings are being capitalized into too high land values in relation to prices of farm commodities, averaged over a considerable period of years. Their mortgage-loan

policies should be based somewhat on the same principles involved in the policy of the federal land banks and Land Bank Commissioner in basing appraisals on the "normal" value concept. The federal and state agencies responsible for making bank examinations might be entrusted with the added responsibility of bringing about a conformity of the appraisal policies of commercial banks with those of the Farm Credit Administration.

The wise use of bank credit for farmers involves a practical knowledge of the economic factors affecting the various types of agricultural production. It would seem that the outlook information developed by federal and state agencies would find a practical application through the effective use of this information by bankers in making agricultural loans. In this connection, some of the state agricultural colleges and state experiment stations have been working closely with country bankers in their respective states. A further extension of this activity to other states would likely be of considerable benefit to both banker and farmer.

In making loans on livestock security, banks might well give more consideration to the effect of their loan policies, as well as those of other lending agencies, in accentuating the cyclical fluctuations in livestock production. Policies followed in extending credit on livestock, of course, cannot be expected to iron out completely the cyclical fluctuations in production and prices. The use of outlook information in formulating loan policies, however, may be effective in preventing many farmers from going into debt too heavily at a time when the outlook for prices is such as to indicate future financial difficulty for the livestock grower having a small equity in his stock.

The practice of budgeting loans to the actual cash needs for crop production purposes which has been so effectively developed by the production credit associations, is deserving of general adoption by all commercial banks. Not only will it tend to reduce the amount of the bank's carry-over loans following seasons of low income, but it will prevent also the borrower from contracting an unwise debt burden.

In general, the country bank will contribute most to the economic stability of its community if it bases its loans on the minimum amounts which are necessary for the borrower to make the most effective use of his farm and equipment. Although from the bank's standpoint a loan may be safe if backed by adequate security, difficulty may be encountered in the continuing of the sound operation of the farm business if the repayment of that loan is not within the borrower's normal earning power. The bank may lend

in excess of earning power and still be safe by taking over sufficient of the borrower's assets to make up for the portion of the loan that cannot be paid out of earnings. Loans on this basis, however, endanger the ability of the borrowing farmer in keeping possession of assets necessary for the most efficient operation of his farm.

As the writer has indicated elsewhere,[7] the maintenance of the production credit association system affords a greater flexibility to the entire country banking system. When the lending resources of commercial banks become extended, the availability of the production credit associations will permit a shift of a part of the agricultural financing from commercial banks to the production credit associations. In addition to the regular rediscount facilities of the federal reserve banks, the need for a special agency to which country banks could shift a part of their loans, has been evidenced by the establishment of emergency agencies for that purpose. The War Finance Corporation was actively engaged in assisting country banks in 1921, 1922, and again in 1924. In 1931 the National Credit Corporation was set up, which in turn was followed by the Reconstruction Finance Corporation. In 1932 the establishment of the regional agricultural credit corporations resulted in a considerable shift of financing from country banks to these institutions. The fact that these various agencies were required to assist in handling the agricultural financing problems of country banks indicates that there is a continuing need for some agency to give a greater flexibility to the loan facilities available to agriculture.

The system of production credit associations should thus be an additional factor in stabilizing the lending activities of country banks. In the words of Governor Myers of the Farm Credit Administration: "Our job is to supplement and not to supplant private credit.—There is a need and a place for both private and cooperative credit agencies in farm financing, because each will tend to keep the other on its toes. For, where reasonable competition exists on a high plane, better service will be provided for farmers at a lower cost. And that, I take it, is in the public interest."[8]

Discussion by E. C. Johnson

Farm Credit Administration

Mr. Wall's paper on "The Place of Commercial Banks in Agricultural Finance" has been limited to three broad aspects of the problem: first,

[7] Wall, N. J., "Demand Deposits of Country Banks," U.S.D.A. Tech. Bulletin, 575, p. 26.
[8] Myers, W. I., "Improving our Rural Credit Facilities," Farm Credit Administration Circular A-10, December, 1936, p. 16.

service performed and cost of service rendered by commercial banks; second, the influence of competition of federally sponsored agencies; and third, the influence of loan policies on economic stability of agriculture. In discussing this paper I shall limit my comments largely to the second aspect, the influence of competition of federally sponsored agencies providing short and intermediate term credit to farmers. It is in the field of short term and intermediate term credit that commercial banks are most important. As agencies providing long term agricultural credit they occupy a less important position than in former years, and, as Mr. Wall has indicated, while they may expand their loans they are not likely to ever regain their former position. Commercial banks must maintain a liquid position and be prepared to meet demands of depositors and long term farm mortgage loans are not well adapted to their operations.

Commercial banks and production credit associations are the leading credit agencies providing short term and intermediate credit for farmers. Individuals and other agencies, merchants for example, are also important but their lending activities may be incidental to other activities, while in country banks lending to farmers is a primary function and in production credit associations a sole function. It should be emphasized that production credit associations are permanent cooperative credit associations operating on a business basis and are making the class of loans which are sought by commercial banks. In other words we find, as Mr. Wall points out, a competitive relationship existing between commercial banks and production credit associations and the role which commercial banks will play in agricultural finance will be influenced to a considerable degree by this competition.

According to an analysis by Mr. Wall, the agricultural personal and collateral loans outstanding in commercial banks in the United States increased from $661,606,000 on June 30, 1936 to $726,400,000 on June 30, 1937, an increase of 10 per cent.[1] During the same period loans outstanding in production credit associations increased from $139,467,606 to $159,438,727 or 14 per cent. While commercial banks will continue as important credit agencies for farmers, I can not agree with the conclusion which Mr. Wall reaches, that production credit associations are not likely to increase in importance relative to commercial banks as a source of personal and collateral loans to farmers and I shall mention briefly conditions which seem to me to indicate that the associations will grow and in the future occupy a relatively more important position.

It is probably only in the matter of location that banks have an important advantage over production credit associations. Farmers find that the local bank is conveniently located and therefore may prefer the service of the bank instead of contacting the office or representative of the association. On the other hand it should be mentioned that there are many agricultural communities without a local bank where it is equally or perhaps more convenient for the farmer to use the production credit association than the bank in a neighboring community. It is doubtful if banks under a unit banking system can operate profitably in most small towns, which means that many communities will not have the service of a bank located in the community. On the other hand in matters other than location production credit associations appear to have distinct advantages

[1] Supplementary report on agricultural credit developments relating to commercial banks—U.S.D.A.

over local banks as a source of short and intermediate term credit for farmers.

While interest rates are an important factor in competition between banks and production credit associations they are probably secondary to the factor of credit service adapted to farmers' needs. It is true that the present low rate of 5 per cent affords a distinct competitive advantage to the associations in many areas. A return to more normal central money market rates which according to Mr. Wall would likely raise the rates to 6.5 to 7.5 per cent should not place the association at the disadvantage which this implies because the factors that operate to raise money rates in the central markets tend to raise interest rates on loans by local banks. I agree that in the west and south which on the whole are capital deficit areas, interest rates charged by banks are higher and production credit associations therefore may be in a better competitive position in those areas, but in the parts of the midwest which are capital surplus areas the associations also may increase their relative share of agricultural financing. In this connection it is of interest to observe that during the period June 30, 1936 to June 30, 1937, a period when banks in the midwest were actively seeking loans from farmers, the volume of loans outstanding in production credit associations in the states of Iowa, Illinois, Indiana, and Ohio increased 34 per cent as compared with an increase of 14 per cent for the country as a whole.

The dependability of production credit associations as a source of credit which is being recognized more and more by farmers gives the associations an advantage over banks. During periods of favorable conditions commercial banks usually expand their loans to farmers but in periods of low income and uncertainty they may be forced to liquidate the loans in order to meet demands of depositors. However, production credit associations since they have no deposit liabilities and have access to the money markets through the sale of debentures by federal intermediate credit banks can renew and increase loans to financially sound and worthy borrowers and thus carry the farmers over a period of economic strain. For a period of nearly two years ending last fall banks in many communities were increasing their loans to farmers, but beginning last fall, with industrial activity declining and the business prospects uncertain there is evidence of a curtailment of agricultural lending by banks. A recurrence of the events of 1931 to 1933 when many farmers in sound financial condition could not obtain credit from local banks would react unfavorably upon the banks as farmers would have forcibly brought to their attention the dependability of soundly operated production credit associations as a source of credit. Production credit associations, as Mr. Wall mentions, afford a greater flexibility to the entire banking system for if the banks become extended they may liquidate loans by requesting their borrowers to obtain credit from production credit associations, assuming of course that the loans meet the requirements of the associations. However, such a shift of loans from banks will tend to increase the relative importance of production credit associations as a source of credit for farmers because most farmers after having become stockholders of an association giving satisfactory credit service are not likely to return to the bank for credit just because the bank is again in a position to make loans to them.

The production credit system is changing the basis for lending to farm-

ers from emphasis on the value of specific collateral as security to the borrower's ability to repay the loan from farm earnings. Commercial banks in the past have placed too much emphasis on the value of collateral as the basis for the loan and have given insufficient attention to the use to be made of the funds and the prospects for earnings. This policy resulted in excessive loans to individual farmers in periods of high prices and serious curtailment during periods of low prices, a curtailment which often involved the sale of livestock and equipment which crippled the farmer and in many cases put him out of business. Profitable use of the funds borrowed is the important criterion in determining whether or not a production credit association shall approve a loan. The farmer must present a definite plan of repayment and show that the funds borrowed can be used profitably in his farm operations. Such a policy necessitates a careful analysis of the income and expenses on the farm by the farmer and the inspector which is likely to result in more intelligent use of credit by farmers and greater stability in agriculture as a whole. It is encouraging to note that commercial banks in many areas are adopting similar practices and it appears that the more the farmers recognize the soundness of the loan policy of production credit associations the more necessary it will be for local banks to adopt similar practices in order to hold their share of the business.

In developing sound loan policies the production credit associations have the advantage of being farmers' cooperative associations directed by a board of farmer directors who are in constant touch with the farmer's problems. These directors in cooperation with the officers of production credit corporations and federal intermediate credit banks determine the loan policies and we therefore have a system controlled by persons who have a knowledge of farming. If commercial banks in agricultural communities also will maintain on their staffs men who have practical knowledge of economic problems of farmers it should be possible to establish and maintain credit policies which will provide the credit needed by farmers without expanding credit to a point where it becomes harmful. That the prospect for development of sound credit for agriculture is hopeful is indicated by the following recommendation made by the Committee on Banking Studies of the American Bankers' Association in its publication on *Government Lending Agencies*—"Bankers should familiarize themselves with the plans of repayment required by production credit associations, as well as their lending methods, and should adopt such of these policies as will enable them to render a quality of service commensurate with the ability of borrowers to pay. This might involve reduction of interest rates in some cases."

Competition between production credit associations and commercial banks is likely to benefit farmers if it is maintained on a high plane and on a basis of improved service based on the farmer's ability to use the funds profitably and repay the loan out of farm earnings. It will lead to disaster, however, if it results in increased loans beyond the ability of the farmer to repay. In the past competition between banks in particular communities often resulted in overlending because liberal loans were a means used for attracting business. This type of competition should be guarded against. On the other hand competition which results in improved service and loans within the limits of the borrower's ability to

repay should be beneficial to farmers and in the long run to credit agencies concerned. Creditors can do much, as Mr. Wall has indicated, to bring about more stable and prosperous conditions for farmers by maintaining sound loan policies. Like Mr. Wall, I would like to close by using the words of Governor Myers of the Farm Credit Administration, who made a very fundamental statement when he said, "Sound credit extension involves lending conservatively in times of high prosperity and lending courageously in times of depression."

PRESENT FEDERAL RESERVE POLICIES

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By the middle of 1936, the monetary management of this country was facing a unique situation. At last, after five or six years of experimenting with inflationary methods, material and psychological, the body economic started on a genuine expansion, witnessed by rising prices of commodities and stocks, by growing volume of production, inventories and turnover, and by other indices of an upturn.

It took a surprisingly long time before the combination of such stimuli as 15 billion dollars of new deposits, the apparent restoration of bank and business liquidity, deficitary expenditures, devaluation and the consequent trebling of the gold reserves, together with a whole system of price-raising and price-fixing policies —until all these succeeded in stimulating on a major scale the revival of investment, speculation, and new business ventures.

Fortunately, and contrary to the expectation of most critics, both the Roosevelt Administration as a whole and the Federal Reserve Board, wisely realized dangers inherent in this situation. Public announcements by the Board and its Chairman as well as by the Secretary of the Treasury and the President himself left no doubt that the men ultimately responsible for the monetary course lost their faith in the doctrine of more money and higher price levels as the aims (or means) of policy. The new doctrine promulgated insisted on the stability of prosperity, rather than on its continued rise; on a high rate of employment of productive factors rather than on high prices for products; and on the distributive aspects of the economic growth rather than on the growth itself. As the ideal of a "bigger" prosperity began to weaken, the ideal of a "better" prosperity came more and more to the fore. Whether or not the changing emphasis was merely a rationalization of emotions deeply rooted in the subconscious mind which carries the memory of the last boom and of its fearful aftermath—the underlying motivation is not relevant to our issue.

What matters is the question of the measures taken and their timing. To understand them it is necessary to recall a few essential elements in the American financial setup of 1936. First, the gold problem. Devaluation, comparative political and monetary security, and the prospect of an upturn, attracted gold and raised its dollar value at such a rate as to create most serious apprehension, and to raise two closely interconnected issues: How to con-

trol the impact of the gold influx on the economic system? How avoid the dangers of a possible sudden withdrawal later?

Second, deficitary pump-priming, indulged in to a great extent, created substantial vested interests pressing for continuation or even further expansion of the same practice. Political forces did not seem to be sufficient even during the upturn to stop the trend; nor did the banks seem able to develop resistance against the use of their credit facilities for government purposes. They followed for years the Secretary of Treasury into his deficits like the children followed the pied-piper of Hamlin into the unknown. But by the spring of 1936 the Treasury was facing the problem of a fourteen to fifteen billion dollar refunding within five years,[1] while a rapid upturn, combined with further deficits, caused grave doubts about the possibility of maintaining the low interest rate on long-term paper.

Thirdly, the vicious circle of the upturn itself. Higher prices tend to carry into higher wages, thereby forcing further price rises. The expectation of higher prices creates forces which are bound to carry into inordinate speculations and capital malallocations, and to make all ideals of balanced price-raising policies objects of ridicule. Specific difficulties inherent at the time in the American labor situation and political organization made not only the eventual outcome of such an inflationary process unpredictable but also its control extremely difficult.

Obviously, monetary management of the years previous to 1936 misjudged the effects of its own policy, and their further manageability. True, the upturn had been well started, but running the risk of losing control over its progress, brakes had to be applied. In their *Annual Report* for 1935 (p. 12) dated from May 1936, the Governors of the Federal Reserve Board still argued that there was no sign visible in the then developing upturn which would have given reason to concern. But only a few months later, this attitude changed. The new policy of the Board, as clearly formulated by its chairman, was to maintain the upturn, but within reasonable limits and without raising the long-term interest rate. This cheap-money philosophy eliminated *a priori* the application of the old-fashioned methods of raising the discount rate either directly, or through the sale of securities on the open market. Instead, other methods had to be used or threatened, which promised to limit the future expansion of the credit structure, but not to deflate it beyond the point compatible with the maintenance of cheap money rates. As Governor Eccles expressed it, "America has reached the

[1] Cf. *Federal Reserve Bulletin*, June, 1936, p. 485.

state in recovery at which it is no longer desirable to have additions either to banking reserves or substantially to the volume of deposits." In brief, the program was apparently to induce rising velocity of circulation of deposits by keeping interest rates low, but to keep the money supply fairly stable.

To stop the inflationary process, several methods were available; only one of importance would be applied by the Reserve Board,[2] namely, the doubling of reserve requirements for member banks. It became effective by installments between August 15, 1936, and May 1, 1937. A second method was the neutralization of the new gold inflow by the Treasury which, since the end of 1936, absorbed through the issue of Treasury bills the new balance due to gold and caused on each transaction a decline of the excess reserves of the New York banks amounting to 25 per cent of the new gold. The third and fourth methods were threats, but none the less effective—the deflationary promise of balancing the budget (and the more remote one of deflating the national debt out of tax proceeds advocated by Chairman Eccles himself), and the strong threat of "adopting measures designed to deter the growth of foreign capital holdings in our markets."[3] As a result, inflation of the deposit volume has been stopped. But neither the Federal Reserve System nor other responsible authorities show much inclination to take credit for it.

And rightly so, since obvious errors in judgment occurred which are likely to discredit the monetary managers, if not the present type of monetary management altogether. It took an unnecessarily long time before it was recognized that a boom was pending, and action had been delayed until the boom had actually developed. Then, its character and portent were misjudged. It was "the expectation of the Board" as its chairman pointed out (early 1937) before the House Banking and Currency Committee, "that there will be substantially more activity in bank loans in the year ahead because of the anticipated expansion of business."[4] Obviously, the Board (or its leader) has been a victim of the psychology of the typical stock speculator who never "anticipates" the possibility of a sudden change in the prevailing market tendency.

The Board also believed—or pretended to believe—in the restoration of its control over the money market through raising reserve requirements for member banks, thereby making the discount rates "operative."[5] The assumption was that the banks

[2] Disregarding the raising of margin requirements for stock exchange loans early in February 1936, which was followed by an outburst of stock speculation and a rise of brokers' loans—certainly not the effect intended.

[3] Governor Eccles, in *Fortune*, April, 1937.

[4] Cf. *New York Times*, February 19, 1937, p. 27.

[5] Cf. M. S. Szymczak (Member, Board of Governors of the Reserve System), "Federal Reserve Responsibilities" (mimeographed), November 17, 1937, pp. 11, 14.

would acquire whatever additional funds needed by borrowing from the "Fed." But they preferred to liquidate government bonds; the Board has apparently overlooked the fact that the banks now regard their bond port folio, or at least its shorter-term portion which brings very little revenue, as a liquidity reserve rather than as an investment proper, especially in view of its ready marketability.

Another error of judgment was the underestimation of the banks' liquidity preference. Reserve requirements were raised apparently on the assumption that the member banks' remaining excess reserves of about half a billion dollars would be ample. This was based on the fact that in 1929 they operated as a whole without excess reserves and on a substantial margin of money borrowed from the Reserve System. However, in the meantime the bankers had learned what they interpreted as a lesson. When the last rise of requirements was announced, with a well meant ninety days' notice, the provinces hurried to strengthen liquidity by calling bankers' balances from New York and other centers, thus in turn compelling the major institutions to liquidate part of their own bond portfolios and thereby creating pressure on an already weakening security market.

This points to a further and perhaps even more serious misconception of the situation. Government bond prices were permitted to drop for a short while (in the spring of 1937), if only four points or so. At a time, however, when almost 57 per cent of the earning assets of all banks were invested in bonds, a large part of which were bought in recent years at relatively high prices, a major depreciation of bond values would bring a great many banks under serious pressure. The mere possibility of such a reversal, changing the almost uninterrupted upward trend of the last years and the concomitant expectations, operated as a warning to banks to relieve their government bond portfolios, or at least to avoid further growth. Recurring sales pressure on the bond market was the result.

The 1936–37 experiment in controlling even a minor boom had also to fail because of error in judgment as to its national and international character. It has apparently been overlooked, that it was essentially a governmentally induced upturn, and that genuine private investment had scarcely been started; therefore, the threat to eliminate the pump-priming device or even to deflate, to say nothing of the revaluation threat and of the revelation of dangers to the banking stability, could not fail to create serious deflationary expectations. The more so, since in the meantime in-

ventories had been piled up and other commitments made, anticipating a protracted rise in prices which, failing to materialize, brought about liquidation.

Lastly, the management appeared to be convinced—and this was its most fundamental mistake—that cheap money in itself is a guarantor of prosperity. This led to serious consequences. Without "control of the cost of obtaining additional reserves," declared the 1936 *Annual Report* of the Board, p. 19 (dated of June 18, 1937), the System "would be unable to discharge its responsibilities. . . " It was unable, indeed, to discharge them, because it was unwilling or unable to raise the interest rates. The substitute method of raising reserve requirements was either unnecessary or else should have been a supplementary one, similar to open market operations, to enforce a higher rate. But if the raise of reserve requirements were to be followed by rising interest rates, the Board was compelled to counteract its own measure by instituting the same inflationary action, the danger of which was supposed to be eliminated by the doubling of reserve requirements.

Not only had the situation been misgauged, but the *malentendu* prevailed for a considerable period even after the markets broke in March and April 1937. Statements were published, as late as August, by Reserve Board and Administration leaders indicating their belief in continued prosperity—in face of its flagrant interruption—reminding one of the attitude taken by the Hoover regime after 1929. Even at a time when the Reserve System had already tried to come to the rescue of the tumbling markets by reducing the discount rates to the record low of one to one and one-half per cent, the Board announced this move as beeing necessitated by the "result of the continued progress of the recovery movement" and to accommodate the "augmented" seasonal demand for credit. As a matter of fact, the Board knew as well as the rest of the financial community that the credit supply was plentiful and that lowering of the discount rate—far below the rate of return on long-term bonds—*per se* could not have any influence on the market, as shown by the fact that in 1937 on the average less than two-tenths of one per cent of the System's total resources (almost 13 billion dollars) was in demand by member banks, compared with approximately 15 per cent in 1929. Nor did, due to this lack of contact with the market, the subsequent lowering of eligibility rules—including virtually any kind of nominally short-term promises to pay among the assets eligible for rediscount—[6] amount in effect to more than to a mere gesture. The prevailing

[6] *Regulation A*, Board of Governors of the Federal Reserve System, October 1, 1937.

plethora rendered all such measures ineffective; this is also true for the promptly following reduction of margin requirements from 55 to 40 per cent on the purchase (but not on the sale) of securities.

The main visible contributions of the Reserve System in combating the market decline since the early Spring of 1937 consisted of emphatical declarations of allegiance to the cheap money philosophy on the one hand, and in minor open market operations on the other. Open market transactions were set in motion in the Spring to the extent of about 100 million dollars, and were indorsed late in the Fall by the purchase of another 40 million dollars worth of government securities. More impressive than these amounts, or even the total holdings of 2.6 billions in the portfolios of the Reserve Banks, is the fact that for six or seven consecutive years the American central banking apparatus practically never sold a single bond during an upswing, but added more and more to its holdings in downswings. This one-way-open-market-policy combined with promises of sustained cheap money, and with the entanglement of the monetary system in the meshes of a permanently deficitary budget, could not fail in the long run to cause violent swings in the volume of investments. Furthermore, it is a dangerous policy because of the risk of panic which its reversal might engender.

But these are long-run considerations which may have little bearing on the current situation. More important perhaps than its visible actions are what may be called the *invisible* policies of the Reserve System. They are part and parcel of a monetary management, the other end of which is in the hands of the Administration and Congress. For convenience, Reserve policies may be distinguished from Administrative policies, knowing of course that the second consist of manifold and often conflicting, or at any rate, by no means coordinated factors. Whether or not there is an *a priori* case for the impossibility of coordinating Administrative policies as a whole with Reserve policies, the lack of centralized leadership became noticeable even before 1937, thanks especially to the insistent demand on the part of the Reserve Board for a balanced budget. But the recent crisis has brought to the fore this problem of cooperation between different branches of our *actual* financial management (including the spending organs of the Administration, the Security and Exchange Commission, etc.).

The invisible policies of the Reserve System, largely unknown to the public, consist of its actions to influence other administrative organs, or the President himself. To all appearance the crisis of 1937 created *intra muros* new conflicts or deepened old ones,

which does not imply that there had been any clear-cut and comprehensive policy ideas (other than the pursuit of cheap money) emanating from either the Reserve or the Treasury authorities. They cooperated on the previous (1936) stop-the-inflation-policy to the extent that it was often doubtful whether speeches of Governor Eccles represented opinions of certain Administration leaders, or vice versa. They also shared the painful surprise caused by the 1937 recession, and the apparent uncertainty of mind as to how to handle it. But since then, any brotherly intimacy of the two chief financial organs has been somewhat undermined through the straits in which they found themselves in having reversed their highly advertised and just recently completed anti-inflationary policies. Within two months, September and October, the Chairman of the Federal Reserve Board twice reversed his own public stand on the question of margin requirements;[7] the Open Market Committee twice came, reluctantly, to the rescue of the bond market. The Treasury reversed itself (in September) on its gold hoarding policy by releasing \$300 millions of neutralized gold, but continued to add new gold to the inactive fund. Apparently, the mental sacrifice involved in carrying the burden of reversing pet policies was passed from one to the other, and back again. Still more discouraging is the fact that the Treasury's fight against the "spenders" in Administration and Congress no longer seems to be supported by the politically highly influential head of the central bank whose complete silence on this subject in recent months sharply contrasts with his previous vocal admonishments for balancing the budget.

All these human elements and uncertainties in the monetary management were and are reflected, in a magnified way, in the European markets which were within half a year exposed to two good-sized panics of opposite character, both due to the apprehension of forthcoming American action—a spring rush from gold to America (fear of revaluation) and the autumn rush from America into gold (fear of devaluation). Even within the country, monetary management by speech-making starts to become a new feature of a so-called planned economy, and not precisely to the advantage of all concerned. In his latest Chicago speech (December 14, 1937) Mr. Eccles tried to justify the Board at some length, without adding to or explaining the inconsistencies of its recent policies, and blaming non-monetary factors for the breakdown. "The experience of this past year (1937) illustrates again the limitations of mone-

[7] Cf. Howard Wood, "U. S. Burocrats Run to Cover in Market Storm," *Chicago Tribune*, November 12, 1937.

tary and fiscal policy," said the Chairman, but did not indicate whether or how the actions of the Board will be in the future adapted to those limitations. He did not even indicate which of his recent measures are of an emergency or of more lasting character.

This short and unsatisfactory résumé of the circumstances, under which Federal Reserve policy had to labor in the last two years, may be sufficient to bring one or two points home. It should be evident at once that the present controlled gold standard, notwithstanding the almost dictatorial powers entrusted to the President, the Treasury, and the Reserve System, provides none of them with the necessary requisites for a control over the credit machine which would be able to guarantee its stable functioning.

Many of the difficulties which have been due in the past to the control of credit by an incoherent multiplicity of banks, have been eliminated. Manifold legislation and administration, pressure and inducement have greatly reduced the danger of financing a run-away industrial boom as well as that of wholesale bank failures. Nor does there seem to exist any danger to the monetary system through loss of gold, as has been so often the case in the past. But multiplicity of governmental organs compete now for control with the Reserve System, thus creating a similar lack of unified leadership as in the past. The former risk of gold-drought is replaced by the not less serious risk of gold-flood. For the risk of credit over-expansion because of industrial entanglements of the banks is substituted the far greater risk of inflationary expansion due to their entanglement in deficitary budgets. As the New Era was based on the dogma of the infallibility of industrial finance without regard to the quality of its management, so is the assumption of the impregnability and inexhaustibility of government credit fundamental to the New Deal.

However, the present management of the Reserve System is apparently conscious of some long-run issues involved in its policies, in contrast to the naive manner in which the management previous to 1929 ignored most of its own future problems. But present and previous managements have in common the almost identical doctrinaire belief in theories of what constitutes or determines prosperity. And their powers are limited, in both cases, by the necessity—political and otherwise—of due respect to vested interests. In the one period, the tower of industrial and similar credits had to be protected by the central banks; at present, it is the tower of public debts which must be supported.

INFLATION AND THE PRICE OF LAND

LOUIS H. BEAN
AGRICULTURAL ADJUSTMENT ADMINISTRATION

The published title, Inflation and the Farmer, suggested three types of treatment. One was to treat the subject in terms of a forecast as to whether inflation will come to enliven the lot of farmers during the next few years and whether that experience is likely to be a happier one than their experience of the past 20 years. The other method that suggested itself was to deal with it in general terms, extracting from the abundant material on prices, production costs, debt burdens, net incomes, and living standards such quantitative relationships as might clarify our understanding of what has happened, so that it might give us a surer basis for judging probable effects should inflation come again. The third was to select a specific problem and deal with it in greater detail and carry it to a point or two beyond previous studies in the same field.

From the standpoint of current interest, the first approach might have been the one to take, but to make a forecast as to inflation calls for more intuitive wisdom than we possess. The second approach might have been a more generally useful one and would have been the substance of this paper had it not been necessary to devote considerable time during the past few days in trying to understand only one of the specific problems involved in the relation of inflation to the farmer, that specific topic being the relation of farm prices to land values, a relation that involves the rapid building up of a debt and cost structure during inflation to plague farmers during many years of deflation. The substance of this paper is therefore limited to an attempt to see how the price fluctuations of the past 25 years and incomes of the past 13 years were translated into variations in land values. In this 25-year period we had a price rise of 130 per cent between 1914 and 1919, a 20 per cent rise between 1921 and 1925, and a 110 per cent rise between 1932 and 1937. We had two periods of sharp deflation, a 30 per cent deflation between 1919 and 1921 and a 60 per cent deflation between 1929 and 1932. Any assumption as to future inflation or deflation is certain to fall within the range of this experience. The quantitative relationships between prices of farm products and the price of land, and the nature of their cumulative effects, based on such wide fluctuations, should be of some use whether we assume inflation, deflation, or price stability for the future.

Before presenting the results of our study of United States land values from 1912 to date, it is worth while to observe how land values in these recent years compare with those that stretch back over the previous century or more. Fortunately we have a long-time record of land values for Missouri from 1820 to date, a record which shows the cyclical fluctuations about a persistent upward trend with an increasing rate of increase. Between 1820 and 1840 this trend represents an annual increase of 3 to 4 per cent. From 1900 to 1920 the rate of increase was about 8 or 9 per cent. Since 1920, however, the trend has been downward at a rate about comparable with the rate of increase prior to 1920. About that trend of values produced by the opening up of the continent to productive enterprise by an expanding population and by a lowering of interest rates, we may see short-time fluctuations that are related to the ebb and flow of economic conditions and particularly the varying rate of migration and developments in transportation. Two features of these cyclical variations in land values may be noted in passing. One is that they have ranged between 15 and 20 years in duration and that their amplitude, that is, their fluctuations about their long-time trend, has become smaller and smaller over the century (See Chart I). In the 1830's the cycle of land values advanced to about 100 per cent above their trend; the cycle after the Civil War advanced about 75 per cent; and the one around 1905 to 1910, about 25 per cent. This may be of some significance in any consideration of the magnitude of future land booms, for it suggests that if they are not produced by sharp monetary inflation, they may be of smaller magnitude than those of the past.

The chief point to observe, however, is that the period from 1912 to 1937, the period of our analysis, marked the end of the long-time rise in farm land values not only in Missouri but also for the country as a whole, and that it is this last phase of rising land values and the subsequent period of decline that we have attempted to analyze in terms of prices of farm products.

Since the quantitative analysis we are about to present is simply the relation of prices to land values, it may be well to anticipate obvious questions and criticisms by pointing out some of the changes in costs and incomes that accompany price inflation and deflation. For the country as a whole, gross income increased by about 150 per cent between 1914 and 1919, almost wholly as a result of price inflation. Costs of production, including the costs of a rising debt load, increased less rapidly, and net income available for the farmer's capital and labor were inordinately high, but

only for a brief period of about two or three years. In 1918 and 1919, profits on rising land values were high and farmers enjoyed a real increase in their standard of living. For that brief fling at war-time inflation and prosperity, farmers continued to pay during the following seven years of partial deflation. Their per capita purchasing power of income available for living was below normal between 1920 and 1927 as much as it had been above normal during 1917 and 1919.[1] Before they could again get into step with the rest of the country, they were overwhelmed by complete deflation after 1929. The story of relatively stable costs during 1920–1929 for practically all farmers, compared with the collapsed level of prices and incomes, the decreased purchasing power of net income in exchange for industrial goods, the over-hanging debt burden for those who hopefully shouldered it at the peak of the land boom, and the other features of the partial deflation of 1921 and complete deflation of 1932,—this story is familiar to most of you. The major features of the reflation of 1932 to 1937 with its rise in prices and gross returns, its greater increase in receipts than in costs, the reduction in debts and taxes and the heroic measures that were undertaken to keep farmers attached to their land, to keep farm homes intact, and to restore farm and general purchasing power, these are also generally familiar. But even this reflation period has now been followed by a setback before farmers had attained a full measure of recovery. We are now a long ways from the inflation of 1914–1919, but I am inclined to look upon the failure of agriculture and the rest of the country to regain a sure footing in prosperity in 1937 as one of the items in the long chain of consequences flowing out of the brief but costly period of war-time inflation.

The changing values of farm land have of course been explained adequately in theoretical terms and these explanations have been in part corroborated statistically. Chambers, as students of land values know, demonstrated the generally accepted theory that land values depend upon capitalized current income, and upon capitalized anticipated increases in income.[2] Another study in which the empirical approach was used is that of F. L. Thomsen in which the value of land for the country as a whole for the period 1912 to 1932 is related to a 10-year cumulation of wholesale prices

[1] See "Income Parity for Agriculture," by L. H. Bean, *Agr. Situation*, Feb. 1936, U.S.D.A.

[2] Chambers' formula: $V=\frac{a}{r}+\frac{i}{r^2}$. V=land value; a=annual income; i=arith. average annual anticipated increases in income; r=rate of interest.

The calculated i's, the i's which were necessary to justify the valuations of 1920, are approximately equivalent to the average increases in cash rents of the preceding six or seven years (in every area except Minnesota and Iowa). In Iowa, 9 preceding years, in Minnesota much shorter.

See: C. R. Chambers, "Relation of Land Income to Land Value," U.S.D.A., Bulletin 1224, June, 1924.

of farm products and to a 5-year cumulation of taxes per acre[3] but neither of these studies are applicable satisfactorily to the period following that for which the studies were made. The present study also should be taken as a preliminary one. The present study is an attempt to trace the continuing effect of a given price level for farm products through the subsequent years during which that price level may have an influence. Our results in a measure corroborate Chambers' findings, but they reveal in greater detail how the influence of prices of a given rise in farm products diminishes over the years and how the duration of the influence depends upon the magnitude of the price change. The price factor used in our study is roughly equivalent to the current income factor in Chambers' formula and the varying lags in the effect of price of land values of subsequent years is here substituted for Chambers' factor of anticipated average annual increases in income over a period of years. Chambers' analysis of land values begins with cash rents or income. Ours begins further back, for it can be shown that changes in prices of farm products precede changes in cash rents.

The data used in this analysis consist of two series only, the official index of prices received by farmers yearly for crop years July to June and the official index of land values per acre for the United States as of March of the same crop year. These data are shown in Chart II. It is clear at a glance that the value of land traces back to the prices of commodities. For individual states it is possible to show that one of the links between prices of farm commodities and of farm land is the current net cash rent or the current net income derived from the use of the land.

The procedure in the analysis was to treat land values as the dependent factor in a multiple curvilinear correlation problem and to treat prices with different lags as the independent variables. Thus we made use of seven so-called independent price series, each differing from the other by one year. For example, to the price of land in March 1926 we related the price index of the crop year ending with June 1926 and the indexes, separately, for the previous six crop years. The result is a set of relationships showing what, over the past 25 years, has been the relation of prices of farm products to the value of land in the current crop year and in each of the preceding six years. To the statistically minded it will of course appear immediately that in a problem of 26 observations, 1912 to 1937 inclusive, the use of six independent variables would give a relatively low degree of reliability to any of the six relationships,

[3] See F. L. Thomsen, "Factors affective annual variations in Farm Real Estate Values," Jour. Farm Economics. April, 1935.

Chart I

Missouri Farm Land Value Per Acre

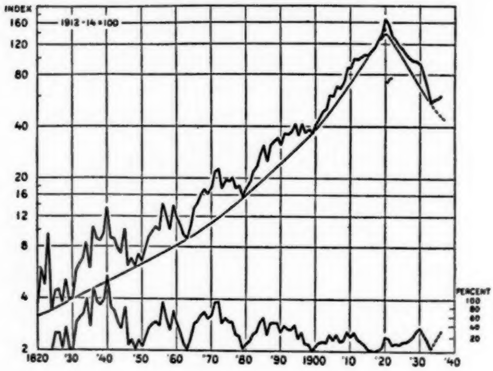


Chart II

Farm Prices of Commodities and Land Values

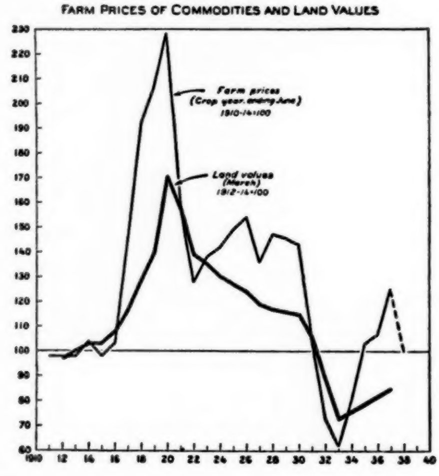


Chart III

Effect of Prices and Other Factors on Land Values, 1912-1937

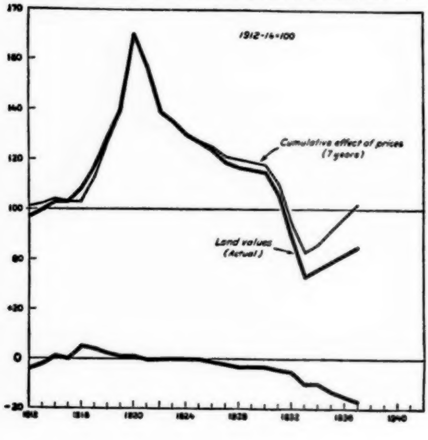
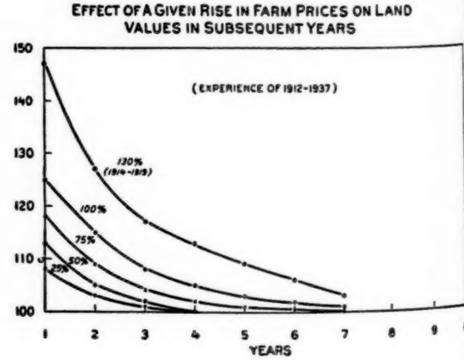


Chart III-A

Effect of a Given Rise in Farm Prices on Land Values in Subsequent Years



but this is a case where the author is inclined to place more reliance tentatively on the consistency of the results rather than on statistical measures of the reliability of the relationships.

Taking the whole period into account, we find that these six price series quite adequately portray the annual course of land values with this exception that since about 1928 the value of land has been progressively lower than that called for by the average relationships of prices to values. Thus in 1927 the index of land values as officially reported was 124. The index as computed from the price-value relationship is 125, a difference of only one point; but for 1933, the actual index is 73, the estimated 83, a difference of 10 points; and for 1937 the actual index of 85 was 17 points lower than the estimated. There has not been time in the preparation of this paper to develop a statistical explanation of factors that may have been operating in the past few years to keep land values lower than prices, and factors usually associated with prices, would call for, nor to reexamine with finality whether the lower portions of the price value curves may not be redrawn so as to account for the major part of the unaccounted for values since 1930.[4]

Both the extent to which the six price series can be made to reproduce the annual land values, particularly between 1912 and 1930, and the discrepancy in the recent years are shown in Chart III. In the lower section of Chart III, it appears that land values were somewhat higher in 1916 than those estimated from prices alone, probably marking the end of the long-time rise in land values in excess of price influences.

Of the total variations in land values from 1912 to 1937 that are in this study associated with prices, about 52 per cent are associated with prices in the current crop year, 25 per cent with prices in the previous crop year, and 8 per cent, 6 per cent, 5 per cent, 3 per cent, and 1 per cent with prices in the respective previous crop years. Thus on the average, about three-fourths of the impact of a sharp price inflation takes place during a period of about two years, and about five-sixths in three years. Actually the high level of farm prices in 1919–20 (130 per cent above the pre-war level) continued to have a diminishing influence on land values over a period of 7 years until 1926. Chambers, it may be recalled, showed that about one-half of the value of land in 1920 could be accounted for by capitalized current income. In this study we find that about

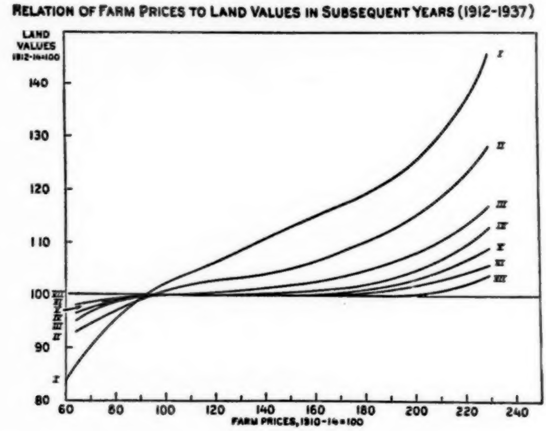
[4] If the lower portions of the curves were given steeper slopes, they would indicate a less consistent set of influences than that shown for the rise in prices in Chart IV and lags without diminishing price influence. We expect that a few more years of data will be necessary to determine whether what we show here as a trend in residuals should be attributed to prices or to some other factors.

one-half of a given rise in land values over a period of years may be associated with prices of farm products in the current year.

The separate price influences on land values show a great deal of consistency, the relation of prices in the current year being of about the same type as the relation of prices to values in the previous year, but the magnitude of these relationships varies a great deal. This may be judged from the slopes of the curves in Chart IV. The curve, labeled "I" represents the relation of prices in the current year to land values, 100 in each case being the pre-war averages. The curve labeled "II" represents the relation of prices one year previous. It is clear that the curves marked I and II have the greatest significance and the curves marked IV, V, and VI, the least.

CHART IV

RELATION OF FARM PRICES TO LAND VALUES IN SUBSEQUENT YEARS (1912-1937)



The nature of the curves, particularly those marked I and II, is probably a function of the sharp increase or decrease in profits that go with very high or very low prices. In the case of the relation of current prices to land values (I) we find that prices 75 per cent above the pre-war level are associated with land values 18 per cent above, but an additional rise in prices of 75 per cent to 225 per cent of pre-war had the effect of raising land values from 18 per cent above pre-war to 40 per cent above. It was in the years of high prices, 1918 and 1919, that agriculture was really on a profitable basis. Costs of production, debts, and living costs on the farm had not yet fully caught up with the inflated prices. There were in those years more actual and anticipated income and profits to be capitalized into land values. These were the years when the land boom was really in full swing.

These differences between the effects of given levels of price inflation on land values may be presented in another way to em-

phasize particularly the duration of influence. In Chart IV, derived from Chart III, we have plotted the effects on land values by years of lag, associated with 5 levels of commodity prices. The others are 100 per cent, 75 per cent, 50 per cent, and 25 per cent above pre-war. A lift in the farm price level of 130 per cent during the current year (1) is associated with a 47 per cent rise in land values; during the next year (2) it is associated with an additional rise of 27 per cent; during the subsequent years with rises that gradually approach zero after the seventh or eighth year. One way of interpreting this relationship is that if prices were lifted to an index of 230 per cent of pre-war and kept there for a period of seven or eight years land values would continue to rise during that entire period, but at a decreasing rate. Actually, of course, there has never been and it is inconceivable that there could be a situation of that sort for economic and social forces let loose by such artificially high prices would soon bring their downfall.

In the case of a lift in prices of only 25 per cent above pre-war, the immediate effect is a rise in land values of about 8 per cent, in the next year about 3 per cent with practically no additional influence in the subsequent years.

With these results of our study in hand, we may now raise the question as to the probable value of land in the United States in 1938, and in subsequent years on the basis of various assumptions. The level of farm prices in the 1937–38 season has fallen from 125 in 1936–37 to nearly 100 at present. According to curve I in Chart III this would call for an index of land values of about 102 per cent, and according to curve II the price index of 125 for 1936–37 would add 3 per cent more; but the lower prices of 1931–33 call for a reduction of about 4 per cent, indicating a level of farm land values at about 101 per cent of the pre-war average. This, however, is exclusive of those factors associated with time which in 1937 kept the land value index down by about 17 per cent; and if we assume that these factors, whatever they may be, will continue to have the influence they exerted in 1937, the value of land in the United States in March 1938, according to this analysis, would be about where it was in 1937. If these factors continue to depress land values year after year as they have since 1929, farm prices maintained at the present level would probably be accompanied by a moderate decline in land values.

It may also be useful to observe what amount of price inflation would be required to restore the average of land values to the pre-war level; in other words, how much of a price lift is required to offset those factors which now keep land values at 85 per cent of pre-war. Judging from Chart III, a rise in farm prices of about 30

per cent would in about two years add about 15 points to the index of land values; a rise of about 60 per cent would do so in about one year.

This analysis of land values for the country as a whole, we have supplemented with analyses of land values for several of the major agricultural regions, partly to answer the question as to whether inflation in land values might not already have taken place by the end of 1936. Stauber and Regan in their Bulletin on Farm Real Estate values give data as to farm cash income for the calendar years from 1924 to 1935 by regions and show that there is some correspondence between gross cash income and land values in March of the following year. The same data may be used to reveal somewhat more exactly the relation of income to land values in recent years by allowing for factors other than current income that appear to be associated with time. As in the previous analysis, no attempt has been made to discover statistically the meaning of the downward course in land values, after allowing for current price or income influences in each of the regions. In spite of that, however, it is useful to observe both the regional differences in the influence of income on land values and the regional differences in the downward trend in values not associated with current price or income changes. It should be noted that as in the previous analysis about half of the total variation in land values are associated with the current factor and about half with the "other" factors.

The results of these regional analyses are given in Chart V. The income and land value data here are expressed as percentages of their 1924–29 averages. On one side of the chart are given the relationships of income to land values for the four regions: corn, hay and dairy, wheat, and cotton, and on the other the downward drift in land values due to other factors. In the corn and cotton belts the effects of the low incomes of 1932 were greater than in the other two regions. But the more interesting and suggestive differences appear in the course of land values associated with factors other than current gross income. These factors in the case of the hay and dairy region have had a continuous downward influence up to 1937. In the case of the wheat belt the downward influence seems to have closed with the year 1934. In the corn belt the downward influence appears to have been somewhat greater in the past three years than in the previous ones. In the cotton belt, land values in 1936 and 1937 turned up somewhat with no change in the level of farm income.

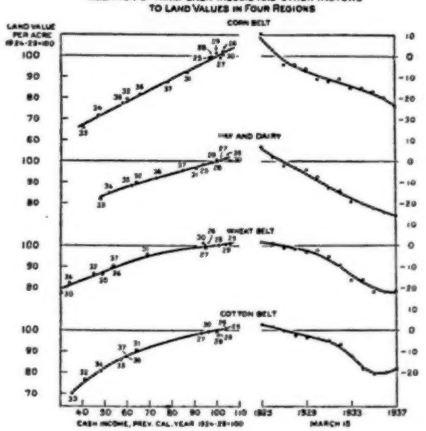
These analyses were originally undertaken to answer the question as to whether the reflation of 1932–36 and possibly anticipated

income were beginning to appear in the structure of farm land values. For 1937 the land values when reported turned out to be in line with the expectations based on our analyses for 1925–36, indicating that no new forces not in existence in the previous ten years had yet appeared to affect the price of land. Our tentative conclusion was, therefore, that by the beginning of 1937 land values were not yet revealing the influences of anticipated profits except possibly in the South. The decline in farm prices, farm incomes, and general business conditions after the spring of 1937 has probably postponed such anticipations for several years at least.

Any generation of farmers that has lived through a period of

CHART V

RELATION OF FARM CASH INCOME AND OTHER FACTORS TO LAND VALUES IN FOUR REGIONS



inflation and the inevitable protracted deflation probably knows that no long-time good can come of it. The difficulty in the way of applying the lesson is the fact that the lesson dies with the generation that experienced it and a new generation may rise with its own untarnished enthusiasm, and venture forth into production under the stimulus of high prices, a mortgage, and hope. In many quarters there is apparently real concern over the possibility of another land boom, and much thought is being given as to ways of preventing it. Our study indicates how a land boom arises out of the current and anticipated profits that go with price inflation. It suggests that if we want to avoid a land boom we must avoid monetary price inflation or inordinate price advances for any other reasons. In view of the current discussions of the ever-normal granary type of farm programs, it may not be out of place to suggest that if farmers eschew inflation and seek greater stability in

prices through greater stability in production and market supplies, they will go a great way in avoiding another land boom and its aftermath of rural distress.

Index of Farm Prices and Land Values

Year	*Farm Prices ending June*[1]	*Land Values per acre, March*[2]
1907	83	—
1908	87	—
1909	92	—
1910	102	—
1911	98	—
1912	98	97
1913	98	100
1914	104	103
1915	98	103
1916	103	108
1917	146	117
1918	192	129
1919	206	140
1920	228	170
1921	157	157
1922	128	139
1923	138	135
1924	142	130
1925	149	127
1926	154	124
1927	136	119
1928	147	117
1929	146	116
1930	143	115
1931	104	106
1932	73	89
1933	62	73
1934	81	76
1935	103	79
1936	107	82
1937	125	85

[1] 1910–14 =100. U.S.D.A. index of farm prices for years ending June 1911–1937; indexes for years ending June 1907–10 based on Bureau of Labor Statistics index of wholesale prices of farm products.
[2] 1912–14 =100.

Discussion by Arthur R. Upgren

University of Minnesota

Dr. Palyi's paper submits with admirable brevity the range of problems with which Federal Reserve policy in the short run must contend. It sketches the framework of the structure that we have now set up and of the agencies that we have endowed with monetary powers. That structure consists chiefly of the Treasury and the Federal Reserve System—if we assign to the Treasury policy over revenue raising and disbursing acitivities. In fact with the potential powers of the Inflation Bill of May 12, 1933, and with the maintenance of working balances of around a billion dollars or more the Treasury possesses independent powers over credit policy that practically match in quantitative amount those possessed by the Reserve System itself. And this in the short space of two years since the formal divorce of the Treasury from the Reserve System!

Dr. Palyi lists the monetary causes of the difficulties that he has so clearly and completely described. Those consist of devaluation and its effects on our gold supply; deficitary pump-priming—and here the vested interests that have arisen are acknowledged; and finally the vicious circle of the upturn itself with emphasis on the vicious circle of higher prices, higher wages and higher prices.

If we direct attention to these we may observe that for practical pur-

poses control of the value of gold does not lie with the Reserve System. Unless we are prepared to give it control an impasse—in the long run at least—exists for effective Reserve policy. As to the deficit pump-priming it is pointed out that "a decline of the excess reserves . . . amounting to 25 per cent of the new gold" results "from the neutralization of the new gold inflow by the Treasury." But it should be noted that this decline takes place only if deposits *rise* and the depletion of excess reserves by an increase in the volume of bank deposits seems a hardly satisfactory way in which to secure a *reduction* of the present large volume of surplus reserves. Here then we cannot say that we find the basic cause of difficulty within the ambit in which the Reserve authorities may operate. The difficulty lies with whatever it is that induces the purchases in the United States that are being made by foreigners which may be partially the result of undervaluation of the dollar, as the attracting force, or military and political uncertainty that is operating in other countries as the repelling force. A more peaceful world rather than a more belligerent America represents a desirable solution or method of minimizing the present extent of these forces.

The third feature that Dr. Palyi has indicated is the vicious circle itself. To measure, in a word or two, the most recent progress up the spiral it might be pointed out that in the twelve months ended with the end of last summer or early fall British wholesale prices gained slightly more than twice as much as our wholesale prices while *our* industrial production gained roughly twice as much as *theirs*. Whatever difficulties this may portend for England it may serve to suggest that some of our spiral was imported with the inflow of news of rearmament abroad, the drought at home, and possibly soldiers' bonus repayment—factors again not willing "submitants" to either Federal Reserve or Treasury control.

As Dr. Palyi has said in another place ("The Liquidation of An Induced Prosperity"—Stifel, Nicolaus & Co., Inc., Letter, Chicago, October 19, 1937), "Monetary management should recognize that it deals not only with purely monetary measures but with an entire set of public policies, including wage, price and tax policies, agricultural and tariff measures, and sometimes even constitutional questions." In a world that is seeking stability after a period of very great instability forces over and above these must be reckoned with. Monetary management at one period faces one set of difficulties; at another, different difficulties; yet it must attempt to chart a consistent course whatever the difficulties are. Perhaps the correct course can only be found when some of the difficulties of the present, at least in part, are removed by action that again in large part might be described as non-monetary in nature.

There is a final condition which monetary management faces. The figures that have been given comparing so briefly the price trend and that of industrial production in Britain and the United States suggest the question—"Why has the United States had so much trouble in maintaining even most limited stability in her recovery when the spiral of the upturn has been sharper in Great Britain with possibly lesser instability than we have had?" For it is not only in the United States that wage increases have been obtained; increases that may be described as generally horizontal have been granted in Great Britain. An approach to the answer might be found in the much greater decline that the United States

has in the depths of the depression. Recovery has been slower, it is true, but the rate at times has been exceedingly sharp with us. This has been due in part because of the depth of our decline and in part because of the delay in recovery itself. As a result of these conditions when improvement came the rate of development that could be justified by the outlook for the future was a most rapid one. There is much accumulation of depreciation of heavy construction that must be replaced. For many industries, steel for example, a rise in current output to let us say a figure over 60 per cent of capacity called forth very greatly increased construction, justified by the outlook for profits that were obtainable at the new level of output but contributing nevertheless to instability. This progress by jerks is probably in the future to be more violent in its ups and downs until something that could possibly be called a "normal" rate of investment is experienced. It is this factor that tends to make any purely monetary action quite inadequate in the present short run quest for stability.

In my view the action by the Reserve Bank authorities could do but little in the period that we are considering to achieve stability in the face of this condition. It is for this reason that I interpret the boom as due much more to real causes than as due to monetary causes. Perhaps "its character and portent were misjudged" but if the present view is correct the boom could hardly have been judged in any way so that monetary policy could have produced any very great stability. As a result the situation could hardly have been affected in the way Dr. Palyi has interpreted it by the reserve authorities' convictions as to the desirability of low interest rates. These surely are the incessant inducement that is offered to affect the longer run trend, not the course of a cycle that is of the type having let us say a duration of "40 months" or thereabouts.

Discussion by Fred L. Garlock

Bureau of Agricultural Economics

Dr. Bean's interesting paper is statistical in character and calls for discussion of the same character. As the paper was delayed in preparation, I did not have an opportunity to see it and study Dr. Bean's methods of analysis until evening before last. My comments must therefore be in the nature of early impressions, which might be changed materially after more thorough study, and of observations based on a general acquaintance with factors related to land values.

Dr. Bean's analysis adds further evidence on a point already well established; viz., that farm income has a very potent influence on the course of land values. Stauber and Regan, in their studies of the Farm Real Estate Situation, have shown a close relationship, during the period since 1923, between farm income of a given calendar year and the value of farm lands in the following spring. Chambers, in the studies referred to by Dr. Bean, established that the high levels attained by land values in 1919 and 1920 reflected not only the effects of the income currently received at that time, but also an element of anticipation that farm income would continue in the future to increase as it had for several previous years. Dr. Bean's analysis attempts to show the respective degrees of influence exerted upon the course of land values by income received in each of

several preceding years, and it is interesting to note that the influence of any one year's income appears to vary according to two conditions; first, the amount of the income, and second, the period elapsed since that year's income was received.

Technically, Dr. Bean uses farm prices instead of farm income as the factor influencing land values. I do not know whether he feels that it is preferable to use prices instead of income, but the logical connection between land values and farm prices seems naturally to lead through income, and for that reason these comments have been expressed in terms of income rather than in terms of prices. I personally should expect to find a closer relationship between net farm income and land values than between farm prices and land values, for the changing ratios of gross income and of many farm costs, such as tax, interest, and other relatively inflexible items, to farm prices, make it possible for the same level of farm prices to produce substantially different amounts of net farm income. Benefit payments to farmers participating in the program of the AAA also appear to be a factor that might alter the relationship between farm prices and net farm income.

A point that interests me in connection with Dr. Bean's study is the comparison drawn between his method and that used by Chambers. Stauber recently told me that although Chambers' formula worked well for a period culminating in 1920, he (Stauber) had found the formula unworkable for the period since 1920, when land values were declining. The success attained by Dr. Bean in deriving a formula which produces a fairly close correspondence between estimated land values and actual land values during the period since, as well as the period before, 1920 would seem to indicate that he had made considerable improvements upon the methods followed by Chambers.

At first sight of Chart III, I was surprised at the close correspondence appearing between estimated land values and actual land values in 1919 and 1920. Having lived in the midst of the intense land speculation that occurred in Iowa at that time, it was my impression that land values had been driven to heights out of all reasonable relation to farm income or farm prices. Therefore I should have expected to find the actual land values considerably above the estimated values in 1919 and 1920. It did not surprise me to find actual land values below estimated values in recent years, as the pessimistic outlook of farmers growing out of their experiences since 1920, and the immense volume of land now in the hands of unwilling owners, were conditions that would seem naturally to depress land values below the levels indicated by income receipts, whether past, current, or prospective.

In explaining to me the close correspondence between estimated and actual land values in 1919 and 1920, Dr. Bean suggested that intense speculative activity might be as logical an effect of high farm prices and income as any other development, and that in any event his regression lines were so fitted as to take account of the actually prevailing land values in 1919 and 1920 regardless of reasons why they were so high. That explanation seemed then, and still seems, satisfactory to me. But I am puzzled by the fact that actual land values are consistently below estimated values in the period since 1926. It seems to me just as logical that reduced farm prices or income during the recent depression should

result in numerous foreclosures and large amounts of land in the hands of unwilling owners, as that intense speculative activity should have developed from the high prices and incomes of 1919 and 1920. Moreover, if the regression lines were fitted in such manner as to take account of high land values in 1919 and 1920, regardless of the causes of these high values, it would seem to me that they should take equal account of the low land values of the recent depression era, regardless of the causes for their low levels. I cannot help wondering, therefore, if the formula used in computing estimated land values may not overemphasize the influence of farm prices and incomes in 1919 and 1920. The relationships between income or prices and land values during recent years seems more in keeping with common observations.

In concluding, may I point out that the relationships between farm income or prices and land values computed by Dr. Bean, apply to a given period of time, and may be altered appreciably during some future period. Their value for forecasting purposes depends on a low rate of change in the importance of the various factors affecting land values. One might fall into serious error if he attempted to predict the trend of land values, assuming that inflation or some other development caused purchasers of farm lands to alter the basis for their valuations. Many of us, reasoning, we thought, upon the basis of past experience, have been surprised to encounter no greater price effects from deficit financing, the devaluation of the dollar, and the expansion of bank credit during recent years. We can look back now and explain why we misfired, but that doesn't alter the fact that we guessed wrong. The same danger, I think, attaches to forecasts of land values. Dr. Bean, perhaps even more than those of us who have had less experience in forecasting, will recognize that no difference how perfectly a series of developments occurring in one period of time may be explained by a given formula, it may be necessary to derive a new formula to explain the next series of developments.

TRADE AGREEMENTS AND AGRICULTURE

LYNN R. EDMINSTER
DEPARTMENT OF STATE

The Trade Agreement Act, enacted in June 1934 for a period of three years and renewed at the last session of Congress for another three years, has been in effect some three and a half years. What is the significance of this Act for agriculture? What have been its results to date? What are its further potentialities?

General Status of the Program to Date

Two years ago, in a paper on this same subject which I read before the American Economic Association, I reviewed the progress of the trade-agreements program as it affected agriculture. At that time agreements had been signed with nine countries, but only four had come into effect. Since that time agreements have been concluded with seven more countries, and preliminary or final negotiations have been entered into with five more, including the United Kingdom.[1] We have also begun the negotiation of a new agreement with Canada. The sixteen countries with which trade agreements are now in effect accounted, in 1929, for 37.3 per cent of our exports of all commodities and 37.7 per cent of our imports. If we add the five countries with which we are now negotiating, it appears that the twenty-one countries with which agreements have either been concluded or are in process of negotiation account for 54.8 per cent of our exports in 1929 and 47.8 per cent of our imports.

Such figures are enough to suggest that real progress has been made—especially when one takes into account the complexity of the problem that has had to be faced, the nature of which I need hardly pause to describe. They indicate, moreover, that the trade-agreements program is a developing program and not one to be subjected to finality of judgment at any particular stage. In this latter connection, the negotiations now in progress with the United Kingdom—the greatest of all our agricultural markets—assume, for agriculture, a particularly important significance.

Opposition in Some Farming Areas

In any discussion of the relation of this program to agriculture, it would be idle, however, to ignore the fact that there is considerable misunderstanding about this whole subject throughout some

[1] Up to December 2, 1937, trade agreements had been concluded with Belgium, Brazil, Canada, Colombia, Costa Rica, Cuba, El Salvador, Finland, France, Guatemala, Haiti, Honduras, Netherlands, Nicaragua, Sweden, and Switzerland. Preliminary or formal announcement of negotiations had been made with Venezuela, Turkey, United Kingdom, Canada (new agreement), Czechoslovakia, and Ecuador.

parts of the farming regions. Some of this opposition extends even into farming areas which most conspicuously stand to gain from the program, thus reminding one of the drowning man who does everything possible to obstruct his own rescue. In part this misunderstanding arises, I believe, from a failure to perceive the fundamental economic relationship of tariff policy to agriculture; in part, from a failure to appraise accurately the results and significance of what is actually being done. Such misunderstanding has been greatly assisted by two boon companions in the perpetuation of popular fallacies in regard to matters of this sort: one, the slow infiltration of new facts and new points of view into the thinking of busy people who for years have been accustomed to other modes of thought; the other, the hyperactivity of individuals and groups having particular interests to serve, in seeing to it that this process of infiltration is retarded to the fullest possible extent.

Misconceptions Concerning the Basic Relationship of the Program to Agriculture

The essential facts concerning the fundamental relationship of the tariff to agriculture are not very complicated. They have been pointed out repeatedly by the Secretary of Agriculture and by many others. They rest basically on two propositions. First, agriculture in this country normally produces a vast surplus in excess of our domestic requirements which must be sold in foreign markets, and is geared to produce even larger surpluses if profitable outlets can be found. Second, agriculture would still be on a surplus basis even if every dollar's worth of agricultural products which we normally import (other than products, such as rubber, coffee, et cetera, that are not grown in the United States) were excluded and we produced domestically whatever quantities of such products, or of substitutes for them, consumers in this country were able to take off the market at the higher prices that would have to be paid for them.

Under the foregoing conditions it is idle to talk of assisting agriculture through a policy of high tariffs. The complete exclusion of every trace of an imported agricultural product even remotely competitive with domestic production could not effectively protect agriculture. In fact, just the contrary. For it is not a matter of theory but of history that any such remedy for the farm problem is pure quackery and positively injurious. In order to obtain every last shred of a domestic market which is not large enough in any case to absorb all of its product, agriculture must acquiesce in a tariff policy which is ruinous to both its domestic and its foreign

market. To obtain "embargo" tariffs on its own products, it must consent to "embargo" tariffs on other products. As producers, farmers find their markets both at home and abroad shrivelling under a régime of trade constriction; as consumers, they find themselves burdened by tariff-increased prices of most things that they buy or would like to buy if they could. This is an old story and I would not repeat it were it not for the fact that to this day—more than seven years after the Smoot-Hawley fiasco—much of the opposition to the trade-agreements program from quarters claiming, at least, to represent considerable elements of farm opinion discloses either a complete ignorance or a complete disregard of these simple fundamentals.

The implications of all this from the standpoint of the trade-agreements program are clear. A tariff policy which seeks to reduce excessive trade barriers and to rebuild our foreign commerce and world trade generally upon a sound basis is certain to be vastly to the advantage of the country as a whole, because it will result in a more effective application of our capital and labor and hence in a larger real income for the nation. But from the standpoint of agriculture the gains to be realized from such a policy are especially to be emphasized, for the very reasons that have been indicated.

Misconceptions Relating to Appraisal of Results of Program

In this discussion, however, I am not primarily concerned with the broad question of whether a reduction of our tariff duties to more moderate levels will be in agriculture's interest—a question to which there is really but one answer. My chief objective is to indicate what is actually being accomplished through trade agreements in improving outlets for farm products, and to clear up certain misconceptions concerning this matter. It will save time in the end, and make for a better understanding of the subject, if some of these misconceptions are dealt with at the outset.

One of them relates to statistics. In keeping with the great American penchant for believing that statistics can prove anything and that nothing can be proved without them, I shall presently cite certain figures that have varying degrees of significance. But before doing so, I want to make it emphatically clear that it is quite impossible to get at more than a part of the truth concerning the operation of this program through the medium of statistics.

We start with certain known facts. We know that trade agreements have been negotiated with sixteen countries which account

for nearly 40 per cent of our total foreign trade and that in these agreements there has been a vast number of duty reductions and other mitigations of trade restrictions, as well as bindings against increased barriers. We know something as to the scope of the program thus far as affecting agricultural and other items. But we cannot definitely measure the effects of the various trade concessions upon trade, owing to the influence of disturbing factors which cannot be isolated. We only know, as to this, that when effective duties and other barriers to trade are substantially reduced, it will surely be easier for trade to flow than it would have been otherwise. We do not need statistics to understand that.

Moreover, we have to beware of over-simplified standards of judgment. For example, it is easy to fall into the habit of thinking of the possible gains to agriculture wholly in terms of increased export outlets. And yet, vitally important though that phase is, it by no means tells the whole story. What is of final concern to the farmer is that the *total* outlet for his crop be increased; it is immaterial whether the increase is through domestic or export outlets. When we obtain industrial concessions from foreign countries tending to foster our exports of *manufactured* products, we stimulate industrial activity, employment, and urban purchasing power for our *farm* products right here in the home market. Because this benefit is indirect and incapable of statistical measurement, it is commonly slurred or ignored. Yet it is an important part—in some cases the main part—of the whole picture. For reasons that are readily apparent, it is of particular significance to producers of dairy products, fruits and vegetables, and meat.

Another illustration: One of the banes of our whole experience with this problem has been the compartmentalized thinking upon it which we constantly encounter. Agriculture's traditional class-consciousness, rooted in years of struggle to secure a fair share of the national income, is reflected in a tendency to appraise each step in the program in terms of more or less sterile comparisons with the treatment accorded industry. If at a given stage of the program we make an agreement which happens to have a greater direct significance for industrial than agricultural *exports*, or a greater direct significance for agricultural than for industrial *imports*, we are likely to be condemned as enemies of the farmer, interested only in "selling him down the river" on behalf of the industrialists.

The chief effect of such comparisons is to divert attention from the preponderant fact that both agriculture and industry, but especially agriculture, are certain to benefit greatly from a general

reduction of trade barriers and a healthier flow of international trade. Agriculture has, of course, a proper interest in seeing that its long-standing position of tariff inequality, climaxed in the Smoot-Hawley Act, is remedied. But it has nothing to gain by insisting that no duty on any agricultural product can be too high for the good of the nation or of agriculture; or in adopting a narrow attitude toward the question of whether, at a given moment, more concessions are being obtained on behalf of non-agricultural than agricultural exports. If the general effect of trade agreements is, while readjusting our own tariff downward, to reopen foreign outlets for both farm and factory products, thus greatly widening the home market as well, that is what really counts. For that will not only tend to remedy the condition of tariff inequality about which agriculture has justly complained, but will also create a larger national income in which agriculture can share.

The Export Phase of the Program

Turning now to the export phase of the story, I call attention first to the broad matter of trade coverage to date. The sixteen countries with which trade agreements have been concluded bought 28.1 per cent of our agricultural exports in 1929 and 23.4 per cent in 1935. This compares with 41.8 and 39.0 per cent, respectively, for nonagricultural products. Because our trade with many of these countries first negotiated with tends to be complementary rather than competitive, involving exchange of their more or less non-competitive agricultural products for our manufactured products, the total coverage in the earlier stages of the program has naturally been greater for our non-agricultural than for our agricultural export trade.

This picture is greatly altered, however, when we add to the list the United Kingdom and other countries with which negotiations are now in progress. With the United Kingdom alone taking 26.3 per cent of our agricultural exports in 1929 and 34.9 per cent in 1935, the total percentage for the twenty-one countries is raised to 54.9 per cent for 1929 and 58.3 per cent for 1935. This compares with 54.8 and 52.0 per cent for non-agricultural products for these respective years. And if we exclude cotton, thus confining the figures to agricultural products more generally subjected to trade restriction, the figures become still more striking. With the United Kingdom accounting for 30.8 per cent of our exports of agricultural products other than cotton in 1929 and 50.9 per cent in 1935, we find that the twenty-one countries accounted for 66.5 per cent of our exports of such products in 1929 and 76.1 per cent in 1935.

The coverage of the program, in terms of agricultural export markets, will be fully doubled by the single addition of the United Kingdom to the list.

Of course it is true that we do not obtain concessions on every agricultural item in the trade with each country. It is accordingly of some interest to note what proportion of our agricultural exports to the trade-agreement countries has received direct concessions. Based on 1929 exports, it appears that nearly one-third of our agricultural exports to such countries received improved trade treatment (lower duties, increased quotas, et cetera) and almost another third was guaranteed against duty increases or other derogations of existing treatment.

It should be observed, however, that such figures do not convey the whole truth. On the one hand, they tend to overstate the case in that they include items which, out of an abundance of caution, have been bound in some of the agreements against less favorable treatment but which probably would not be given less favorable treatment in any event. Cotton is the outstanding illustration. On the other hand, the figures tend to understate the case in that they leave entirely out of account the increased exports of both unscheduled and bound items made possible by the additional purchasing power acquired by the other country through its increased sales to us. From this point of view, we assist, let us say, cotton exports simply by dint of making it possible for other countries to buy more from us.

Limitations of space do not permit a full description of the concessions obtained on behalf of American farm products. Hundreds of concessions in one form or another have been obtained. Official documents have been prepared which list the agricultural products thus far directly affected by concessions; others are available which discuss these concessions in more or less detail. The testimony of Assistant Secretary of State Sayre before the House Ways and Means Committee last winter in connection with the resolution to renew the Trade Agreements Act goes into the whole agricultural phase of the program and presents pertinent exhibits in that connection. I can mention, in passing, only a few illustrations.

Fruit is an outstanding example. Concessions of direct benefit to the American citrus fruit industry have been obtained in 13 of the 16 agreements thus far concluded. All of the agreement countries except one have granted concessions on dried fruits of various kinds; all except one have granted concessions on some kinds of fresh fruits; and all have granted concessions on various canned fruits.

On fresh, canned, or dried vegetables, there are either duty reductions or guarantees not to increase present duties in every agreement except one. In some cases all duties were removed and certain vegetables placed on the free list. Canada, in particular, has given this country far-reaching concessions on vegetables. The duty was removed entirely from certain vegetables; the basic ad valorem rate on most others was reduced by 50 per cent; and valuable concessions were obtained in regard to the minimum specific duties and increased valuations applicable during the season when our vegetables compete with Canadian vegetables.

Hog products are also a noteworthy illustration. Concessions or bindings on these have been obtained in almost every agreement. Among the first and most important were the concessions obtained from Cuba: important duty reductions on various pork products; a drastic cut in the lard duty from 9.6 cents a pound to 2.3 cents the first year of the agreement and scaling down to 1.5 cents from the third year, plus removal of the consumption tax of 1 cent a pound at the end of the second year. Canada made steep tariff cuts on fresh pork, hams, and bacon, and a moderate cut on lard.

The range of other agricultural products represented in the list of concessions obtained is wide. In some cases the value of the concession is substantial. In others, owing either to the smallness of the potential market or the limited character of the concession, it is obviously minor.

As to the actual trade effects of the concessions received, no detailed discussion seems worth while. The outward movement of the leading types of agricultural exports other than cotton has been so retarded because of droughts that the recent trade figures have little significance. Moreover, for some products, such as pork, the effects of drought are likely to be felt throughout the marketing year 1937–38. To be sure, there are studies available containing detailed analyses of our agricultural and other trade with trade-agreement countries; and in many cases these show gratifying trade increases, following the trade agreement, which can be fairly definitely attributed to the concession. No one, however, has been able to suggest how a particular trade concession could be made to increase our exports of a farm product of which the drought left none to export. Allowing for a certain lag in items like pork, the return of more normal crops this year should afford a better basis for judging of the effects of the trade agreements on exports.

Meanwhile, some indication of the potentiality of these agreements for increasing trade is perhaps to be gleaned from the figures for total commodity exports. These show that our exports (in-

cluding re-exports) to 14 trade-agreement countries were 14.1 per cent greater in 1936 than in 1935, as contrasted to an increase of 4.0 per cent in exports to other countries. For the first nine months of 1937 as compared with the same period of 1936, the respective figures were 44.5 and 33.0 per cent.

The Import Phase

I turn now to the import side of the picture. As was to be expected, there has been almost every possible form of misstatement, misinterpretation and distortion of fact in connection with this side of the situation. Among the subjects of political interest that have registered high percentages of error in the realm of public discussion, I think this one should be awarded the prize. By every conceivable twist of the figures and of the powers of suggestion, opponents of the program have sought to imply that a vast flood of imports of farm products, for which trade agreements are in large part responsible, has been coming into the country and displacing domestic farm products. To be sure, these wholesale distortions of the facts have been publicly exposed many times; but since they continue to be reiterated, they may as well be exposed again.

The essential facts are these: there has been a large increase in imports of farm products during the past year; but this increase was due almost entirely to causes other than trade agreements—causes, moreover, which readily show that it is not, and never was, a genuine matter for alarm to agriculture.

As to the part played by trade agreements in these import increases, the facts are simple. While the duty reductions made on agricultural items presumably faciliated imports to some extent, their influence was decidedly minor. Sugar is the principal agricultural item on which the duty has been reduced. But the quantity imported is limited by quota in conjunction with special legislation adopted on behalf of the domestic industry. The amount coming in has not changed appreciably since the Cuban agreement went into effect, and the increase in value of sugar imports is due almost entirely to higher prices. Excluding sugar, only about 4 per cent of our agricultural imports in 1936–37 (June 30) consisted of trade-agreement items. Even if every dollar of increase in the imports of such items were attributed to the duty reductions—which, in view of rising domestic prices, would certainly not be justified—trade agreements could not have played an important part in the agricultural import situation.

Two major causes largely account for the increases in imports:

economic recovery and drought. Economic recovery resulted in a vast increase in the demand for raw materials and also greatly strengthened the demand for many dutiable imports. Drought resulted in larger imports of feed crops which did not displace, but rather supplemented, our unusually deficient domestic production.

In connection with this matter of increased imports, a study has been made which throws interesting light on the whole subject. In 1936–37 (year ending June 30) imports of agricultural products were $699,000,000 greater than in the pre-drought, pre-trade-agreement year 1933–34. Of this amount, $252,000,000 is accounted for by the major items in that group of products which is not grown in the United States or substituted for domestic farm products. A further $141,000,000 is accounted for by major items in the group consisting of products the imports of which were affected by the great droughts of 1934 and 1936. A further $45,000,000 is accounted for by sugar, imports of which are limited by quota. A further $178,000,000 is accounted for by major items in that group of products which is normally imported in large quantities because we cannot produce enough of them at reasonable prices to supply our domestic needs. The remaining $83,000,000 consists of small items distributed throughout all of these groups other than sugar.

The moral of this tale should be clear. When anyone sees alarmist statements that our imports of farm products in the year 1936–37 (June 30) amounted to over 1½ billion dollars, he should not get excited. His time will be better spent in looking into the ingredients that go to make up this figure. Similarly, he should try to preserve his calm when he notices that such imports were $600,000,000 greater than in 1935–36. He will save himself a lot of useless worry if he remembers that a large part of these imports consists of wholly noncompetitive products, our requirements for which rapidly increased with the progress of economic recovery; and that the same cause, together with shortages resulting from drought, explains most of the remaining increases. Meanwhile, let him examine the figures for cash farm income showing a rise of a half billion dollars in 1937 over 1936, excluding benefit payments (600 million, if benefit payments are included), and a doubling of such incomes between 1932 and 1937. Then let him consider whether it is true that large imports of agricultural products necessarily portend disaster to farmers or whether, on the other hand, the two do not tend to go up and down together in response to general economic conditions.

If there were time, I would gladly take up, for specific discussion, some of the outstanding cases where it has been alleged that duty

reductions on a particular agricultural product have resulted in serious injury to the domestic industry. All of these cases have, however, been threshed out so many times in public statements or addresses by responsible government officials that I do not think it is necessary to re-hash them here. In every case the dire predictions of those who sought to stir up alarm over such concessions have not been borne out. All of us will remember the agitation about cattle and cheddar cheese: how the country was deluged with charges that imports were flooding over our border and ruining the domestic market; though they never did do so and never will so far as the effects of the concessions made on these products are concerned. And then, of course, there is the classic case of babassu nuts, but there is no need to dwell on that.

The facts are that the concessions made on farm products have not been numerous and that, wherever it seemed necessary, they have been carefully safeguarded by seasonal or quota limitations on imports permitted to enter at reduced rates of duty. The utmost caution has been exercised with regard to the granting of any concessions on farm products which might result even temporarily in real injury to any branch of agriculture. Naturally the expectation is that the duty reductions will lead to some increase in imports; otherwise they would not be worth anything to the other country and would contribute nothing toward the reopening of the channels of trade which is the basic objective of the program. But, as stated, every concession is carefully studied from the standpoint of its possible effects on the domestic industry. The size and character of past imports; the relation of actual and prospective imports to domestic production, consumption and prices: these and other pertinent factors are carefully considered.

At the same time, however, it is necessary to keep in mind the central fact that the net effect of the agreements is to assist toward the rebuilding of our foreign trade and hence the development of a wider market at home for the very products on which the duties are reduced. When the producers of cheddar cheese had practically 100 per cent (99.84) of the domestic market in 1932, they were getting around 10 cents a pound for their product, and their gross income was 37 million dollars. In 1936, after the duty-cut which went into effect the first of the year, they still continued to supply nearly 98 per cent (97.78) of the domestic market; they got an average price of 15.3 cents a pound; and their gross income was in excess of 75 million dollars. While many factors contributed to this rise of income, it is at least apparent from these figures that a

slight change in the percentage of our consumption supplied by imports is not a controlling factor in the prosperity of the industry.

Misconceptions Concerning Our Most-Favored-Nation Policy and Its Effects

It remains to note one further matter, and that is the criticism that has been made of our most-favored-nation policy. There has been a great deal of public discussion of this subject of late, but very little evidence that it is understood. It is alleged that under this policy we are busily engaged in "giving away something for nothing" and that, in some vague and mysterious fashion which remains to be explained, agriculture is a particularly unfortunate victim of this extremely "self-denying" and "generous" policy.

Actually, the policy is not one of generosity at all but is actuated rather by self-interest on our part and on the part of those countries which sign agreements with us or otherwise extend the policy to us. The most-favored-nation clause which is inserted in our commercial treaties and agreements is an undertaking on our part not to discriminate against the commerce of the other country, in return for an undertaking on its part not to discriminate against ours. When we reduce the tariff on a given product, we extend the benefit of the reduction to all countries that are not discriminating against our exports.

But why should anybody suppose that we would do this for nothing? Of course we do not. When we grant this sort of treatment to another country we do so only because it is not discriminating against our goods. This means that it must undertake to grant to us the benefit of every concession which it has made, or may in future make, to any other country. That is not a case of "giving away something for nothing"; that is a decidedly reciprocal affair. And the policy has positive advantages all around. On the economic side it has the decided advantage that it tends to increase the volume of world trade, including our own, since it eliminates the deadly trade-diverting, trade-constricting effects of discriminatory treatment. And from the standpoint of international comity, it tends to avoid misunderstandings, trade wars, and general unsettlement and friction between nations. It is a peace, and not a war, policy.

How utterly ill-founded is the notion that this policy is against either the national economic interest or the interest of agriculture is easily shown. Take the case of agriculture. In 1936 our imports of agricultural products at reduced duties provided in trade agree-

ments, from countries other than those to which the concessions were made, amounted to $7,000,000. If all the agreements had been in effect throughout all of 1936 the imports of such products would probably have amounted to about $10,000,000.[2] Fully 80 per cent of the imports of agricultural, reduced-duty items came in from the countries to which the original concessions were granted —the reason for this being the none too generally understood fact that we normally reduce a duty only in an agreement with the country which is the leading supplier and therefore likely to get the most benefit.

As against the foregoing figures, we received, in 1936, from Canada and France alone, generalizations affecting some $4,000,000 worth of agricultural exports that we would not have received if we had discriminated against their commerce. And what is of far greater importance: through the pursuit of this policy we have safeguarded from discriminatory treatment, certainly tens, and perhaps hundreds, of millions of dollars worth of agricultural exports which would otherwise have been subjected to discrimination. No one can say precisely what portion of our agricultural exports would actually become subject to discriminatory treatment if we followed such a policy ourselves. In this connection, however, it must not be forgotten that if we do not generalize our concessions we will be inflicting positive injury upon all competitors in our market of each country receiving the particular concession. To suppose that we would continue to enjoy wholly nondiscriminatory access to the markets of such countries in the face of these circumstances would be ridiculous.

Agriculture is in no position to humor those who would have us abandon this policy. The $420,000,000 worth of agricultural products we sent to five countries alone in 1936—United Kingdom, Japan, France, Canada, and Belgium—suggests the possible magnitude of the sums at stake. Even omitting cotton, which as a prime necessity might not fall within the range of discriminatory action, our agricultural exports to these countries amounted to $136,500,000—this despite the effects of the 1936 drought on trade during the latter half of the year. Why anyone should consider it a friendly act to agriculture to jeopardize export outlets for these vast millions of dollars worth of farm products for the doubtful privilege of denying to a few countries the benefit of duty reductions on $10,000,000 worth of agricultural imports, requires ex-

[2] Even these figures do not represent a net addition to our imports of such products, to be attributed to generalization of the concessions; since we must assume that in the absence of generalization, some part of these amounts would have been brought in from the respective countries obtaining the original concessions.

planation. Much the same situation applies, moreover, with regard to our trade as a whole: the amount of trade which we safeguard by following this policy is so enormous that abandonment of the policy would be the most woefully short-sighted action imaginable.

In closing, let me again emphasize agriculture's vital interest in the continuance of the trade-agreements program. In reopening the channels of trade we are striking at the very root of the problem of reestablishing and expanding our economic relationships with the rest of the world in a manner calculated to raise the whole level of world production and consumption, improve living standards, and thus promote world economic and political stability. This, of course, is absolutely basic. But let nobody imagine for a moment that it is something for which agriculture in this country is asked to pay a price. That is the shallowest of illusions. First, last, and all the time this program is in the immediate and direct interest of American agriculture. With it, there is at least the prospect of winning back some considerable part of the export markets which we have lost, and at the same time creating a wider and more dependable market at home for agricultural and other products. Without it, the problem of readjustment to shrunken market outlets at home and abroad becomes more pressing than ever. Far from being a menace to agriculture, this program is agriculture's great opportunity.

THE OUTLOOK FOR AGRICULTURAL EXPORTS

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In December 1933 I had occasion to collaborate in a statement on foreign trade in agricultural products from which the following paragraph is quoted.

"An increase in agricultural exports from the United States from the low levels reached during the depression is to be expected with a recovery in world economic conditions. The prospects are, however, that the aggregate of our agricultural exports during the next 10 years will be smaller than in the decade of the twenties and that there will be an increase in the pressure of foreign agricultural products on the domestic markets. It is probable that the exports of grain and animal products from the United States will be considerably smaller, both absolutely and in relation to total agricultural exports. On the other hand, we should be able to continue to export large quantities of cotton, fruit, tobacco, and possibly lard . . . "

I have no apoligy to offer for that forecast today; although we must admit that the unprecedented droughts of 1934 and 1936 delayed the rise in exports from the depression low. What I propose to do, therefore, in the present paper is to start with the present position and to attempt to justify this same conclusion by presenting certain general and specific considerations, of an economic character, bearing on the future of our agricultural export trade.

To start with, we ought to have a picture of how our agricultural exports have developed in the past and the general conditions that have affected them. Next we should observe how these general conditions have changed and some of the implications of these changes. Finally, we should note the special conditions of supply and demand which now affect individual export products.

The Trend of Agricultural Exports From the United States

The Nineteenth Century and particularly the period after the Civil War was an era of expanding agricultural exports from this country. During the first half of this Century relatively few commodities, notably cotton, tobacco and wheat flour, entered into this trade. But during the second half of the Century, concurrent with the opening up of vast agricultural territory in the Middle West, certain livestock products and cereals became important. The rise of such items as beef, pork, butter, cheese, corn and wheat grain to proportions comparable with those of the long-established exports of cotton, wheat flour and tobacco resulted in an enormous exportation of agricultural products from the United States by the time the Nineteenth Century drew to a close.

Toward the beginning of the Twentieth Century, however, the trend of our agricultural exports moved downward. The peak of our exports of dairy products, for example, was reached in the eighteen eighties; the peak of our beef exports in the nineties, and of corn around nineteen hundred. In the five years immediately preceding the World War, which has been commonly used as a base from which to compare later agricultural exports, we were exporting practically no dairy products and much reduced quantities of beef and corn. Exports of wheat, pork and, to a lesser extent, lard had also declined. Our exports of cotton and tobacco continued to be about as large as they ever had been, and fruit had begun to appear as an important export item.

World War conditions brought a tremendous expansion in our agricultural exports. Some of the items which had almost disappeared from the export list, such as dairy products, beef and corn, reappeared on a larger scale than ever. The exports of wheat climbed to a new high level. In fact, the exports of staple foodstuffs during the War and immediate post-war years were the largest they have ever been in the history of the United States.

After the World War the downward trend in exports of staple foodstuffs was resumed. Cotton exports were small in the early post-war years, because of small crops caused by the boll weevil, but they were large during the last half of the twenties. The exports of tobacco continued to expand and in this period were much above the level of pre-war years. Fruit exports became increasingly important.

In the early years of the world depression agricultural exports in general were maintained on a volume basis not greatly different than those in the years immediately preceding but the value of the exports, because of drastic price declines, was much reduced. After 1934 both the volume and the value of agricultural exports continued to fall, influenced in part by the unprecedented droughts of 1934 and 1936.

In the fiscal year 1936–37 the volume of agricultural exports from this country was only a little more than half the volume during the five years immediately preceding the World War. They were the smallest in over 60 years. It should be noted, however, that our exports in the current (1937–38) fiscal year have shown a definite upward movement and will undoubtedly surpass the very low exports of the last few years.

General Conditions Affecting the Trade in Earlier Years

We may now turn to some of the general conditions that have influenced these trends in our agricultural export trade. We will

note first the basic conditions responsible for the rapidly expanding agricultural exports of the Nineteenth Century.

In the first place the requirements of European countries for agricultural products were growing rapidly. This growth in requirements resulted from increased populations and rising standards of living accompanying the development of industry in Western Europe. There was an expanding need not only for more food but also for raw materials for the increasing number of factories. To a large extent industrial countries let their domestic agriculture shift for itself.

In the second place, this was a period of rapidly expanding agricultural production in the United States. With the abundance of free land and with the opening up of this land through the extension of rail and water transportation, agricultural production expanded much more rapidly than the population and there was a growing surplus available for export. Manufacturing in the United States lagged behind European industry and there was a large demand for European industrial products, especially of capital goods.

There was, then, a real and substantial basis for a reciprocity of trade between the United States and Europe involving on the one hand shipments of American agricultural products to Europe and, on the other hand, shipments of European manufactures to the United States.

Not only was there a sound basis for developing trade but the commercial policies both in Europe and in this country permitted the trade actually to develop. The repeal of the Corn Laws in the United Kingdom in 1846 was, of course, the outstanding favorable development. Other important deficit countries also maintained either free trade or at least reasonably moderate duties on agricultural products during the latter half of the Nineteenth Century, although there was a growing protectionist tendency toward its close.

It is true that the United States maintained fairly high tariffs on manufactures during this period but these duties were not sufficiently high to prevent substantial imports of things that we were not producing and greatly needed at that stage of our economic development. At any rate, there was no problem of providing foreign countries with the necessary purchasing power for our exports. The situation was rather that the United States needed additional purchasing power to obtain its imports and, for the first three quarters of the Nineteenth Century, we borrowed heavily abroad to obtain it. From about 1875 to the time of the World War our

large excess of exports over imports, caused chiefly by heavy shipments of agricultural products, served to make possible payments on the accumulated debt.

One more factor having a bearing on the development of our agricultural exports during the Nineteenth Century needs to be noted. The competition from other sources of supply to meet the requirements of Western Europe for agricultural products was less diversified, both as regards products and countries, than it has been since that time. The fact that in certain lines of agricultural production we had a long lead over other potential suppliers of the European market can not be over-emphasized.

It would be desirable, if time permitted, to trace the changes in these general conditions from the turn of the Century down to the present time. It will have to suffice for our present purposes, however, simply to note what the present conditions are and how they differ from those that have just been described.

General Conditions Affecting the Trade at the Present Time

The outstanding fact that emerges from a comparison of the present with the historical position is that the fundamental basis for an exchange of American agricultural products for European industrial products is not as good as it used to be.

In the first place, the requirements of the European deficit countries for imported agricultural products have been tending to decline. This is particularly true of the staple foodstuffs, such as wheat; it is less true of certain specialty products, such as fruit and tobacco. One reason for this decline in requirements is the slowing down of population growth. Another reason is the restriction of consumption through mixing and rationing regulations. But the principal reason is to be found in larger European production. Outstanding instances are wheat and certain livestock products, such as pork and dairy products. This increase in products has been strongly influenced by governmental encouragement in the form of severe restrictions on imports and of direct and indirect production aids.

It is not possible here to analyze in detail the underlying causes of this trend toward self-sufficiency. It is only possible simply to suggest that the following were the principal causes: first, the desire for larger production from the point of view of national defense; second, the desire to maintain returns to domestic producers and, third, the necessity, from the standpoint of international balance of payments, for a reduction in imports at a time when exports were falling. Incidentally, one of the factors underlying the declin-

ing European exports and the consequent reduction in purchasing power for agricultural products is to be found in the increased competition from other exporting countries, such as the United States and Japan, and of increased industrial production in the countries which have provided their principal markets.

In this connection attention should be called to what is probably the most serious problem in our agricultural export situation—the loss of the German market. Germany was formerly second only to the United Kingdom as a foreign outlet for our agricultural products. It now takes only a relatively small amount of cotton and negligible quantities of other products. It is easy to attribute this loss of the German market to current severe import restrictions and the self-sufficiency program. But the roots of this problem go back to the change in Germany from a creditor to a debtor country as a result of the World War and to the increasing difficulties that have confronted that country in maintaining exports of manufactured goods. It cannot be expected that our agricultural exports will be restored to anything like the level of the nineteen twenties, or perhaps to the level immediately preceding the World War, unless the German market can be substantially regained.

In the second place, the ability of the United States to compete for such markets as still are available has been reduced, at least for certain products. On the one hand, we find our increasing population requiring a larger amount of agricultural products at home; and there are no longer large areas of free and fertile land to be opened up to low cost agricultural production. On the other hand, the competitive position of the United States has weakened both absolutely and relative to that of some other agricultural surplus countries. Moreover, these other countries are, in general, debtor countries who have to rely to a large extent upon agricultural exports to maintain their balance of payments. Under these circumstances their only alternatives to continued heavy exports of agricultural products are: depreciation of their currencies, heavy defaults on their foreign debts, or drastic reductions in imports and consequently in their standards of living. As a matter of fact, all of these alternative courses have been followed to a greater or less extent, but there is little doubt that all these countries would prefer to push their agricultural exports.

The United States, on the contrary, is now a large creditor country and, unlike any of the other surplus agricultural countries, it is also a very important exporter of nonagricultural products.

Under these conditions, pressure is lacking from the side of the balance of payments for a large exportation of agricultural prod-

ucts. And if we are to have such exports it is essential that we permit and, in fact, encourage larger imports to provide the necessary foreign purchasing power for our exports and for payment on the debts owing to us by foreigners.

There is one further change in general conditions affecting our agricultural exports, and international trade as a whole, which must be noted. This is the change in the relationship of governments to economic life and particularly to foreign trade. The Nineteenth Century, when our agricultural exports were expanding, was the era of laissez-faire. The present is an era of governmental regulation and control. This trend toward greater control by governments is not merely a phenomenon of the world depression but extends back at least as far as the World War years.

Up to the present time this governmental control, as it relates to the foreign trade of individual countries, has resulted in a contraction of international trade. Of course, no government has attempted directly to reduce its own exports. On the contrary, all governments have intervened more or less actively to increase exports. But at the same time practically all governments have intervened energetically, through a great variety of methods, to restrict imports, particularly those of agricultural origin which they could, more or less efficiently, produce within their own borders. And in the field of agriculture the efforts to decrease imports have been far more successful than the efforts to increase exports with the result that world trade in agricultural products as a whole has been greatly reduced.

Now it is conceivable that this governmental intervention which, in my opinion, is more likely to be continued in the future than to be abandoned, could be directed toward an expansion rather than a contraction of trade. The greatest potential influence existing in the world today in this direction is the reciprocal trade agreements program of the United States. In fact, the success or failure of this program will have much to do with determining whether governments in general adopt policies looking toward trade expansion and abandon policies causing the contraction of trade.

The Situation With Respect to Individual Commodities

Our analysis of the agricultural export situation, however, can not stop with an examination of the general conditions affecting the agricultural export trade. General conditions are important but they do not apply with equal force to each of our export items. It is, therefore, necessary, if we are to have the proper basis for considering future prospects, to examine the special conditions of

supply and demand affecting the individual groups of agricultural export products.

The products which now can be taken to be our principal regular agricultural export items are as follows: Wheat, pork, lard, tobacco, fruit, and cotton.

The question may well be raised, however, as to whether, in view of the shifting character of our trade in the past, some new commodities may appear on the export list. There is such a possibility, as is evidenced by growing exports in recent years of certain horticultural products. But upon the whole I can think of only one staple crop which may in the future be exported in sufficient quantities to have a bearing on our crop acreage situation. I refer to soybeans. Here is a crop for the production of which we have excellent natural conditions and for which world demand is apparently increasing.

Export Prospects for Wheat.—But to return to our present regular exports, we may first consider wheat. What are the prospects with respect to world wheat import requirements? In the years immediately preceding the world depression these requirements totaled in the neighborhood of 750 million bushels a year. They have fallen to something like 500 million bushels. This curtailment has been due largely to an expansion in production in the importing countries. Some of this increased production has been due to better than ordinary weather conditions but it has been due more largely to increases in yields per acre and to larger acreages devoted to wheat. There is no good reason to expect any significant decline in either the acreages or in the yields in the wheat importing countries in the relatively near future.

What are the prospects for increased per capita consumption in foreign countries? Experience shows that after a country's standard of living reaches a certain point, and this point has been reached in most of the important wheat importing countries, a further rise tends toward a reduction rather than an increase in per capita wheat consumption. There are, of course, countries of the world where the standards of living are much below those which are associated with a high per capita consumption of wheat. But these countries are for the most part in the Orient and are primarily consumers of rice. Moreover, they seem to have sufficient production potentialities to satisfy, to a large extent, any future expansion in their consumption of wheat.

Assuming that world wheat import requirements are not likely to return on the average to predepression levels, what are the prospects as regards competition of other surplus producers of these

smaller requirements? There can be little doubt that this competition will continue to be keen. Except in years of unusually poor crops, Canada, Argentina and Australia, as well as the Danube Basin countries, will furnish large supplies, and in years of good weather Russia will be a factor in world wheat markets. It is probably safe to assume that it will be many years before we find another season like the present, with serious crop shortages in two of the large wheat exporting countries, Canada and Argentina, coinciding with large production of wheat in the United States.

About the best that can be hoped for in years to come is a share in the world import requirements somewhat comparable to the share that we had in the decade of the twenties. Even if we get this share, which is by no means certain, our exports will probably be less than they were during this earlier period.

Export Prospects for Pork and Lard.—We may next consider pork products which consist chiefly of cured pork and lard. In the past our main markets for cured pork have been the United Kingdom, which formerly took over 60 per cent of our total exports, and Cuba, which took around 10 per cent. What happens in these two markets will largely determine the trend of our future cured pork exports.

The United Kingdom now has an import quota on cured pork which restricts the United States to 8.1 per cent of the total permitted imports from non-Empire countries. Our share in this quota has averaged in the last three years about 45 million pounds a year, as compared with our actual shipments to the United Kingdom in the years immediately preceding the world depression of around 150 million pounds. Because of the extremely short corn crops of 1934 and 1936, we have not been able to fill the quota allotted us by the United Kingdom in the last two years. But with normal corn crops in this country there seems little reason to doubt that we will have a supply of cured pork more than sufficient to fill a quota of this size.

So far as competition from other surplus producers is concerned, it may be noted that we have been practically ousted from the British market for bacon by the Continental surplus producers, notably Denmark. But so far as ham is concerned, it does not appear that the United States is seriously threatened by other competition, assuming normal corn crops in this country. Incidentally, British hogs are not ham producers so that competition from domestic production is not as serious as in the case of bacon.

With respect to Cuba the United States was able to secure a reduction in the import duties on cured pork in the trade agreement

signed in September 1934, but it may be noted that the trade agreement rates are substantially higher than those prevailing in the nineteen twenties. Some concessions of a minor character have been secured on cured pork exports to certain of the other Latin American countries. But the future of our cured pork exports will be determined largely by the policy of the United Kingdom with respect to imports.

The situation with regard to lard differs considerably from that of cured pork. The United Kingdom is again an important outlet, having taken in predepression years around a third of our total exports but in this case Germany was formerly an extremely important market. The United Kingdom now imposes a duty of 10 per cent ad valorem on imports of lard, although it does not impose import quotas on this product. But American lard is now practically excluded from Germany, chiefly through the medium of foreign exchange restrictions. Unless a way can be found to restore the German market, our future lard exports will undoubtedly average considerably smaller than they averaged during the nineteen twenties. Incidentally, in spite of the greatest efforts on the part of the German Government, it has not been found possible to supply the normal German fat requirements from domestic production, or even from nearby sources of supply.

Probably the main question concerning our lard exports relates to the competition of vegetable and marine oils. There has been an enormous expansion in the production and international trade in vegetable oils and oil-bearing materials since the beginning of the present Century. These oils are used in European countries to a large extent as a substitute for animal fats and particularly for lard. Notwithstanding this growing competition, it seems probable that the United States, in view of its enormous production of corn and lard-type hogs, could, if given equal opportunity in the sale of lard as against vegetable oil, continue to maintain a very substantial lard export trade. But if, as at the present time in certain countries, lard is discriminated against over a long period of time, tastes are likely to be turned to the vegetable oil substitutes with a resultant permanent loss in our export market for lard.

Export Prospects for Fruit.—Turning next to fruit we find a group of products the exports of which have increased enormously in the last quarter of a century. This has been due to a number of factors, among which the most important are increasing per capita consumption in foreign countries and, with respect to fresh fruit, an improvement in handling and shipping methods which have made it possible to place these products in distant markets in good condition.

American fruit exports have, however, been seriously affected by import restrictions in foreign countries, especially in the form of high seasonal duties to protect domestic fruit in their marketing seasons and in the case of the United Kingdom, the world's largest fruit importer, preferential treatment on fruit from the British Dominions. It is perhaps significant in this connection, however, that more progress has been made in securing duty reductions on fruit than on any other group of American agricultural export products in the various trade agreements negotiated to date. But it has not been possible, ordinarily, to secure reductions to a level comparable with the restrictions imposed during the nineteen twenties.

Competition from other surplus producing countries, such as apples from Canada, citrus fruit from Palestine, and a large amount of fresh, dried and canned fruit from Southern Hemisphere countries, has increased and will doubtless continue to increase. But upon the whole our future fruit exports will be determined more largely by economic conditions in foreign countries and the restrictions they impose upon the importation of fruit. In other words, if economic conditions are reasonably good and we can obtain access to the markets on a basis reasonably close to that accorded to other sources of supply, we may anticipate a growing volume of fruit exports from the United States.

Export Prospects for Tobacco.—Tobacco is our oldest export crop. Tobacco exports have held up relatively better than the exports of our other agricultural products with the possible exception of fruit. But there has been a marked change in the character and destination of these exports. In 1923, for example, bright flue-cured tobacco made up only about one-third of our total tobacco exports while in 1936 this type constituted about two-thirds of the total.

The reason for this change is to be found largely in a world-wide shift toward the consumption of cigarettes. This shift has led to a greater use of the lighter tobaccos and notably of American flue-cured. On the other hand, there has been a relative decline in the consumption of dark tobaccos for smoking and chewing tobacco and snuff, and consequently the exports of dark types have fallen off. Increased competition from foreign production, notably in the British African Colonies and in Continental Europe, has also contributed to the decline in exports of our dark tobacco.

The exports of flue-cured tobacco have been well maintained. On the side of foreign consumption there seems to be every prospect that conditions will be at least as good as they have been in the past. But the United States is not likely in the future to supply as large a part of the total requirements.

The United Kingdom and China have been our two largest export outlets for flue-cured tobacco. In the former country, which has taken around 50 per cent of our total flue-cured exports, the takings of American leaf have held up well in total quantity because of the increased consumption of cigarettes. But with the encouragement of preferential treatment in the British market, British Empire countries have greatly increased their production. This is especially true of India. It does not seem probable that British consumption of cigarettes will continue to expand as rapidly as it has in the last decade or two. And with the present preferential on Empire tobacco it may be expected that our share in the British market will continue to decline.

China formerly took between a fourth and a third of our exports of flue-cured tobacco. The Chinese production of flue-cured tobacco has increased tremendously from less than 40 million pounds prior to 1930 to around 200 million pounds at the present time. This means that China is now practically self-sufficient in respect to flue-cured tobacco and that our exports to China in the future will be much smaller than they formerly were. On the other hand, larger consumption of flue-cured tobacco in certain of the European countries may tend to offset the decline in the Chinese market.

We may summarize the tobacco export outlook somewhat as follows. The volume of flue-cured exports should continue large although our share in the total foreign consumption will probably be smaller than it has been in the past. The outlook for exports of other types than flue-cured is less favorable. This is particularly true for the fire-cured types in view of the declining consumption of the products in which these types have been used and the increased competition from foreign production.

Export Prospects for Cotton.—Cotton remains to be considered. Because of the large acreage devoted to cotton and the large percentage of the total production exported, the future of our cotton exports will have an important bearing on the agricultural situation in every part of the United States. This question, however, has many complexities and only the highlights can be touched upon here.

First of all, what are the prospects with respect to foreign requirements for cotton? We can start with the fact that, in the last marketing season, the consumption of cotton abroad was the largest in history. The future consumption of cotton in foreign countries will depend largely upon two factors: the trend in purchasing power and general standards of living in foreign countries

and the extent of substitution of other fibers for cotton. As to the first, it is possible only to suggest here that foreign trade policies will have much to do with the rise or fall in standards of living of the various nations. If these policies are directed toward an expansion in trade, standards of living are likely to rise and the consumption of cotton with them. If they are directed toward a contraction of trade, the opposite will be true.

As to substitution of other fibers for cotton, the outstanding development of recent years has been the increased production of rayon and particularly of the so-called staple fiber. This development has been particularly marked in the totalitarian countries. But so far as we know at present, it is unlikely that staple fiber can be produced at a cost which will compete on a large scale and on equal terms with cotton. At any rate, the substitution of rayon for cotton has been more rapid in the countries which have restricted cotton imports through exchange control and required a mixing of synthetic fibers with cotton. There may come a time, as some people suggest, when all textiles will be made from synthetic rather than natural fibers; but that time, if it ever comes, is far in the future. For the next decade or so it is more probable that cotton consumption will increase even though the consumption of substitute products also increases.

The main question confronting the American cotton producer and exporter is not whether there will be large foreign consumption of cotton, but whether the United States will be able to get anything like its former share of the total business. In 1936–37 the United States supplied less than 25 per cent of the total consumption of cotton outside of the United States, compared with an average of over 40 per cent in the nineteen twenties. The consumption, in foreign countries, of Indian, Egyptian and, particularly, Brazilian cotton increased, both absolutely and in relation to American, over this period.

The trend of foreign cotton production has long been upward but this trend has been greatly accelerated in recent years. Probably the most significant development from the American standpoint has been the increased production in Brazil, from less than one-half million bales to more than three times that much. This increase in Brazilian production, which has come about largely in the southern part of the country, has been due in part to the disastrously low prices for coffee. There appears to be a large area of potential cotton land in Brazil which can and will be exploited if the world price of cotton justifies such a course.

Another development in foreign cotton production which should

be noted is the enormous expansion in China. This year the Chinese commercial cotton crop is estimated to be in the neighborhood of four million bales or an increase of about 60 per cent over the average production immediately prior to 1929. This development in Chinese production is all the more significant in that it is taking place next door to Japan, which has become the largest single market for American cotton and would, no doubt, welcome a source of supply nearer home. At the same time, it should be recognized that, at the present time, only a small part, probably about 10 per cent, of the cotton produced in China is directly competitive with American cotton. It is more competitive with cotton from India, which has also been an important source of supply for the Japanese textile industry.

Russian cotton production has also greatly increased but the larger supplies have been absorbed by domestic consumption.

This tendency toward larger cotton production in foreign countries is likely to continue. And there is likely to be a larger proportionate increase in the kinds of cotton directly competitive with American than in the kinds that are less competitive. This suggests that the United States in the future will account for a smaller proportion of the total consumption of cotton in foreign countries than has been the case in former years.

This does not mean, however, that we will not be able to export very large quantities of cotton. After all, it will be many years, if it ever occurs, before other producing countries will be able to supply all the cotton of medium staple that will be required by the cotton spinning industries of the world.

Just as the total amount of cotton consumption in foreign countries will be determined largely by foreign trade policies both in the United States and abroad, so will the share of American cotton in this total be influenced to a considerable extent by production and marketing policies in the United States.

Even with the maintenance of cotton acreage at or near the present level, however, it is doubtful that cotton exports from the United States in the years immediately ahead will average as high as they did during the nineteen twenties. This prospect, however, could be materially altered if it is possible to open up world trade channels and to bring about concurrently an expansion in world consumption of cotton goods.

A General Conclusion

We have now covered in a very sketchy way the major conditions bearing on the prospects for our principal agricultural export

items. The important thing to note is that these conditions of foreign competition and foreign demand differ greatly as between products and that the export prospects differ accordingly. It might, in fact, be argued that there is no such thing as *the* outlook for agricultural exports.

But one general proposition does hold good. If the United States is to export increasing quantities of agricultural and industrial products, it must, as a creditor country, be prepared to accept even larger imports of goods and services from abroad. If it does this and if it can in the process encourage foreign countries to liberalize their foreign trade policies, the export prospects for every one of our agricultural export items will be improved. Fortunately, in the reciprocal trade agreements program, a determined drive is being made in this direction.

Discussion by Harald S. Patton

Michigan State College

Mr. Wheeler has presented us with a clear-cut survey of the past, present and future of American agricultural export trade in terms both of broad conditioning factors and of individual commodity situations. What I am disposed to offer in this discussion is by way, not of criticizing, but rather of supplementing what has been presented by Mr. Wheeler. In scanning the outlook for American agricultural exports his analysis has run almost entirely in terms of foreign demand, foreign commercial policies and foreign competition. I should like to direct attention more particularly to the bearing of our domestic agricultural policy upon our agricultural foreign trade. The course of the latter depends not merely on what foreign countries may choose to do, but also on what sort of an agricultural program develops out of the pending farm legislation in this country.

The post-war years have marked a significant transitional phase in American agricultural history. The agricultural tariffs of 1921, 1922 and 1930, the persistent equalization fee and export debenture campaigns of the twenties, the stabilization operations of the old Federal Farm Board, the acreage reduction, commodity loan and domestic allotment programs of the Triple-A, and the complex combination of benefits and penalties in the refined commodity control programs of the pending House and Senate bills: All these may be regarded as diverse but fundamentally consistent manifestations of a shift in emphasis from competition in world markets to protection of the home market, and of a determination to establish and maintain a level of domestic agricultural prices more or less insulated from internationally competitive price movements.

Although the reasons why this war-born and depression-fostered policy finds such dominant support both among the farm population and within Congress are quite understandable and have indeed been suggested in Mr. Wheeler's paper, it should be frankly recognized that the very attainment of these objectives implies a retreat from our former position as an

agricultural exporting nation. Although the stabilization operations of the Federal Farm Board did succeed for a while in lifting domestic wheat prices above those prevailing in the British market, they likewise succeeded in largely eliminating the United States as a wheat exporter on a competitive basis, and when efforts to raise prices through AAA acreage reduction programs were reinforced by nature's denials, this country for the first time found itself on a net import basis for wheat. Corn and hog reduction programs, with nature again cooperating, resulted last year in lifting hog prices even above the consecrated parity price level, but that very price situation prevented us from filling even the restricted quota for bacon allotted to us in the British market. During the depression years 1931–32 to 1933–34, United States exports of cotton averaged 8.6 million bales annually. That they fell to 5 million bales in 1934–35 when world consumption was reviving and amounted to barely 5.7 million bales in 1936–37 when world mill consumption was at a record level, is primarily attributable to the price-raising effectiveness of acreage reduction programs and withholding of stocks of Government 12- and 10-cent loan cotton. It cannot be denied that there are strong nationalistic and imperialistic, as well as economic, forces tending to expand cotton production in Asia, Africa and South America, but neither can it be denied that American price policy has been a highly important factor both in stimulating such expansion in production abroad and in diverting foreign purchases to such sources.

The pending House and Senate bills contemplate the stabilization of supplies of agricultural export staples at levels adequate to the requirements of domestic consumption and discernible export demand, but the primary purpose is to maintain prices at what may be deemed remunerative levels, supported by loans on withheld stocks at levels which only a Government-financed Surplus Reserve Loan Corporation might undertake to extend. In the light of our experience with Farm Board wheat and cotton loans and more recent experience with AAA cotton and corn loans, I cannot but entertain misgivings that such pressure may be brought to bear in the setting and administration of loans by the newly projected Reserve Corporation that exports may be prejudiced thereby, and further contraction of supply be called for.

As I see it, there are two alternative methods whereby Governmental action may be applied to raising the returns of producers of agricultural products on an export basis, beyond what they might receive if the entire supply were sold on the basis of world competitive prices. The first implies a limitation of the supply moving into domestic market channels, supplemented by tariff protection, with a view to elevating the price at which the domestically consumed portion may be sold, and the disposal of the segregated surplus at such prices as may induce its movement into export channels. Losses incurred on the latter may be recovered by the imposition of equalization fees or processing taxes, or by direct Government appropriations. This dual price system was the essence of the old McNary-Haugen scheme, and it reappears in the bills introduced by Senators Capper and McAdoo in the present Congress. Section 32 of the Agricultural Adjustment Act, as amended in 1934, authorizes the Secretary of Agriculture to use a portion of the customs revenue to divert agricultural surpluses into export channels, although so far very limited

and discriminating use has been made of such powers, despite strong pressure to extend its applications. Such measures are tantamount to government-supported dumping, a practice which under our tariff law we vigilantly penalize when resorted to by other countries. It implies a burdening of domestic consumers, processors or taxpayers in order to present bargains to foreign countries, which are more likely to counteract than to welcome such concessions.

The second method, exemplified by Argentina and Australia in relation to wheat, implies, on the one hand, the absence of market intervention, permitting the free adjustment of prices to export parity levels, and on the other hand the supplementing of such price returns by direct bonuses or guaranteed minimum price adjustments to producers. Such a policy is conducive to free export movement, although it also involves an internal redistribution of income. Where a commodity is normally produced substantially in excess of domestic requirements—as in the case of cotton and tobacco—and where competitive export prices are clearly at distress levels for producers, the least objectionable method of adjustment may be found, I believe, in the supplementing of such price returns through the proceeds of moderate taxes on domestic consumers or processors, who are otherwise obtaining the commodity in question at abnormally low prices. The chief danger is that such emergency precedents are almost certain to be invoked in support of demands for the subsidized assurance of returns based on parity or cost of production formulas, as abundantly evidenced in the latest crop of agricultural bills. Certainly continuation of subsidies to producers of export crops, beyond conditions of palpable emergency, implies a negation of the principle of foreign trade that a country exports those products which it produces at lowest comparative cost. If our efforts are to be concentrated on elevating prices rather than on lowering costs and trade barriers and on increasing efficiency, and if our export sales are to be dependent on dumping or subsidization, then the economic outlook for American agricultural export trade is a pessimistic one indeed.

Happily, there are to be discerned certain broader and indirect adjustments in our national economy and international relations which in the aggregate tend to create a more favorable basis for our agricultural export trade than that which prevailed in the days when the Triple-A was born. Devaluation of the dollar has removed a major handicap and deflationary influence which confronted our exporters during the Hoover administration. Our agricultural exports today are not dependent, as they were in the twenties, upon the creation of foreign purchasing power through large-scale lending and investment abroad. The very suspension of war debt payments and general liquidation, refunding or writing down of our foreign bondholders' claims tend in themselves to release a larger proportion of available dollar exchange for new purchases of American products. Our generous gold and silver purchase programs have contributed in the same direction. The very contraction in our "favorable" trade balance during the past two years, which some have viewed with alarm, represents a fundamental adjustment to our status as a creditor nation, and provides a sound basis for a healthy and balanced expansion of both our export and import trade. The slow and studied but persistent and widening progress of our Trade Agreements program is gradually bring-

ing about a scaling down of foreign trade barriers and the removal of discriminations against American exports, while at the same time cautiously extending the opportunities of foreigners in the American market, as a means of currently paying for their purchases in this country. In a psychological way this policy of mutual concession and "equality of treatment" is also achieving a measure of good will towards this country which was conspicuously lacking in certain quarters in earlier years, and it is being recognized as the most promising counterforce to the excesses of economic nationalism.

All this means that foreign capacity and foreign willingness to buy American products have been greatly changed for the better. American agriculture stands to benefit from this situation, but realization of the opportunity will depend to a very great extent on the price policy which we pursue.

Discussion by R. R. Renne

Montana State College

In his introductory statement the author of the paper raises three significant questions which he attempts to answer: (1) What is the significance of the Trade Agreements Act for Agriculture? (2) What have been its results to date? and (3) What are its further potentialities? Mr. Edminster is to be commended for organizing his paper in such a straightforward and logical manner around these three very important issues. My remarks will therefore be directed toward analyzing his conclusions or answers to each of these three in the order listed.

In answering the first question, namely, What is the significance of the Trade Agreements Act to Agriculture? the author builds his case around two basic propositions: (1) that agriculture in this country normally produces a vast surplus in excess of our domestic requirements which *must* be sold in foreign markets, and is geared to produce even larger surpluses if profitable outlets can be found; and (2) that agriculture would still be on a surplus basis even if every dollar's worth of strictly agricultural products which we normally import were excluded and we produced domestically whatever quantities of such products, or of substitutes for them, our consumers were able to consume at the higher prices that would have to be paid for them. It must be admitted that, in the main, these two propositions are substantially correct. The existence of an agricultural surplus over domestic requirements in normal years and the statement that we would still be faced with a surplus even if we shut out all agricultural imports are both borne out by available production and trade data. But certain conclusions deducted by the author from the factual existence of a domestic surplus are either misleading or at least not entirely correct.

In the first place, many will question the justification for saying American agriculture normally produces a vast surplus in excess of domestic requirements. We must not ignore the fact that while we do produce fairly large surpluses of certain crops like cotton, wheat, tobacco, and hog products, we do not produce any appreciable excess of many other agricultural products so that for agriculture as a whole the surplus may not be so stupendous as might at first blush appear. But even granting that for agriculture as a whole we normally produce a vast surplus, the

statement that it must be sold in foreign markets is misleading. The word must implies that there is no other alternative or at least no other which is as effective in handling the surplus. There are, of course, other methods some of which many feel offer more hope of solving our agricultural problem than foreign markets.

There is of course the method of curtailing domestic production through various control schemes which are being tried by our present administration. Many regard such measures as temporary, but others maintain that so long as we attempt to continue our capitalistic system in substantially its present form, curtailment measures in some farm products, in view of the immediate outlook for opening up foreign trade, will be necessary for some time to come. In the case of wheat, formerly one of our leading exports, it would seem that our surplus of this product had been produced through undesirable exploitation of many of our soils, particularly in the Great Plains Region, and that at least a goodly portion of the comparative advantage which we thought we had in this crop was really not a comparative advantage at all. In view of the serious agricultural problems now confronting the South, no small part of which is attributable to her one-crop system, something very similar might be said in the case of cotton.

There is also the method of expanding the domestic market for agricultural products by increasing the purchasing power of the consuming masses. While it is true that the human stomach can hold but just so much and that therefore the demand for food products as a whole is relatively inelastic, the demand for certain agricultural non-food products such as flaxseed, cotton, wool, soybeans, etc., is comparatively elastic. However, the fact that the non-food products make up but one-fifth to one-fourth of our total agricultural production limits the effectiveness of the industrial-use program in solving our agricultural problem. Nevertheless, the application of science may ultimately increase this proportion considerably. On the other hand, greatly improving the purchasing power of the lower half of our population, while it might not require any increase in total agricultural acreage to supply the American table over that required during the period 1925 to 1929, would nevertheless result in significant shifts in required acreages between products. *If* the necessary adjustments to meet these shifts in required acreages could be worked out through planned, intelligent action, American agriculture could be on a more permanently sound and prosperous basis than at present even though it lost the foreign market. Continually expanding the cropped acreage or farming every possible acre each year within the farm unit to produce a surplus of some such crop as wheat or cotton for foreign sale does not necessarily denote a healthy or prosperous condition in American agriculture. For a considerable portion of our country (the two most difficult adjustment regions—the South and the Great Plains) I am afraid it has meant just the opposite.

The reviewer finds himself in close agreement with the author on most of the points discussed under his second question, What have been the results of the Trade Agreements Act to date? The appeal to logic and common sense rather than to detailed statistics to prove the accomplishments of the program is both sane and considerate. I am in close accord with the statements regarding: (1) the necessity of thinking of the possible

gains to agriculture from the agreements in terms of the increase in the total outlet for farm products rather than wholly in terms of increased export outlets; (2) the desirability of generalizing our concessions through our most-favored-nation policy; and (3) the conclusion that the part played by trade agreements in increasing our imports has been "decidedly minor." It is on the basis of the author's discussion of this last point—his attempt to prove that the agreements have not brought about an increase in imports—that I believe we can conclude that the results of the agreements program to date have been practically insignificant in helping to solve our immediate agricultural problem.

The statement is made that excluding sugar, only about 4 per cent of our agricultural imports in 1936–37 consisted of trade agreement items, and that if every dollar of increase in the imports of such items were attributed to the duty reductions (which in view of rising domestic prices would certainly not be justified) trade agreements could not have played an important part in the agricultural import situation. Now there are three possible conclusions to be drawn from this, assuming that there is something to the adage that if we would sell we must also buy: (1) the agreements have likewise not played an important role in bringing about an increase in our exports; or (2) we have consistently given concessions on non-agricultural products in order to get concessions on agricultural; or (3) we have simply done some shrewd Yankee horse-trading and outsmarted our cousins across the sea.

From our past experiences I would hesitate to assume that the last of these three is the correct explanation and if I thought so, modesty as an American citizen should prompt me to forego mentioning it. And, from a statement made early in the paper to the effect that "our trade with many of these sixteen countries first negotiated with tends to be complementary rather than competitive, involving exchange of their more or less noncompetitive agricultural products for our manufactured products," I assume that we have not consistently given concessions on non-agricultural products in order to get concessions on our agricultural ones. This leaves us with but the first of the three possible conclusions, namely, that the agreements have likewise not played an important role in bringing about an increase in our exports. In other words, their effect in reopening the channels of trade, which is the basic objective of the program, has been "decidedly minor." This conclusion is based on the supposition that unless the concessions actually lead to some increase in imports they will not be worth anything to other countries and will therefore contribute nothing toward reopening trade channels.

I find myself in general agreement with what seem to me to be the fundamental principles upon which Mr. Edminster makes his case for the trade agreements program. I believe I disagree with him principally on the relative speed and extent to which the benefits of such a program can be achieved for American agriculture. Frankly, I think Mr. Edminster might be classed as very optimistic in assuming that the trade agreements program is agriculture's great opportunity. The record of the past 3½ years is sufficient evidence to indicate that it will be an extremely slow process and that so far as being a substantial, immediate factor in solving the problem of American agricultural surpluses, it simply doesn't fill the bill.

I do not suggest canceling the trade agreements program. Let what little may be done by such a cautious, restricted program be done. Eventually some substantial increases in the foreign market for certain agricultural products might be secured, but in the meantime our acute farm problem will require domestic programs of one sort or another to keep our ship afloat. During such a period let us not naively refer to the foreign market as the panacea for our ills and brand as undesirable all current domestic adjustment programs. Regardless of how much we seem to dislike the controls which come with certain apparently necessary domestic programs, and prefer the automatic regulator which we like to think increased foreign trade would give us (there are many who question just how complete and automatic a regulator freer trade in and of itself would be), there seems no other way but to try both a domestic control program and a trade agreements program together. By continued sane and intelligent effort the trade agreements part of our national program may ultimately be the most important phase. But for the time being, there is no question of the necessity of supplementing the agreements program with domestic crop controls, shifts in use of land, and related adjustments to meet, at least partially, the immediate problem.

Rejoinder by L. R. Edminster

I am indebted to Mr. Renne for his comments and am glad to know that he is in agreement with "the fundamental principles" on which I make my "case for the trade agreements program." I am especially glad to note his recognition of "the desirability of generalizing our concessions through our most-favored-nation policy"—a matter concerning which there has been not a little misunderstanding in certain agricultural quarters, as in some others.

Mr. Renne's critical observations appear to boil down to the general proposition that I have overstated agriculture's stake in this program in two ways: (1) by overestimating the importance of our agricultural surplus in this connection; and (2) by failing to recognize that the caution with which concessions on agricultural and other products are granted (which I emphasize), and the necessarily gradual and slow-moving character of the program, are themselves evidence that restoration of foreign markets for farm and other products is not being accomplished at any "break-neck" speed. I believe this is the gist of his more critical comments.

As to the first proposition regarding the agricultural surplus, the substance of his comments seems to be as follows: that our agricultural surplus is not "vast"; that it does not "have" to be sold in foreign markets; that there are alternative solutions of the "surplus problem" which I should have recognized and discussed—notably (1) production control and (2) expansion of the domestic market in various ways.

Whether or not we produce a "vast" agricultural surplus is perhaps a quibble over words. My own view is that a national agricultural establishment which is geared to produce an exportable surplus, at average yields, equivalent to the output of 40,000,000 acres of good crop land or 100,000,000 acres of poor crop land—to use Secretary Wallace's figures—

is one which is properly described as producing a "vast" surplus. That such an acreage is a minor fraction of our total crop acreage, or is accounted for largely by two or three crops (notably cotton), does not in the least alter that basic fact. If someone else prefers to use other language—a "large" surplus or a "very large" surplus—I have no quarrel.

The suggestion that other "solutions" of the surplus problem, such as production control and increased domestic consumption of farm products, should have been developed in my paper does not seem well-taken. The simplest answer to this is that, in a paper on trade agreements, it would be wandering pretty far afield to enter into a discussion of all of the possible elements involved in a solution of the "surplus problem." But since Mr. Renne brings these things up, what about them?

It is obvious that, to the extent that we either reduce production or expand domestic outlets for farm products, we limit the significance of the word "must" in relation to the problem of re-expanding *export* outlets for farm products. But surely Mr. Renne does not mean to suggest that planned restriction of production is a solution in the same sense as expansion of market outlets. To plan to produce less as a "strategic retreat" from an adverse market situation is an entirely understandable proposition. To effect readjustments in land use in the interest of conservation is likewise entirely understandable. But to offer up the formula of restriction of output as if it were an equally acceptable alternative to expansion of market outlets through the medium of trade agreements strikes me—to use Mr. Renne's expression—as really "naive." For purposes of my paper, I think this element of the problem is sufficiently recognized when I say that "without it [i.e., the trade-agreements program] the problem of readjustment to shrunken markets at home and abroad becomes more pressing than ever."

With respect to the other alternative mentioned—expansion of domestic outlets—Mr. Renne mentions increased industrial uses of farm products and measures to increase the purchasing power of the lower half of the population. First, as to industrial uses: There are doubtless some possibilities along this line for expansion of the home market for farm products. But there is also danger of accomplishing just the reverse. To the extent that new industrial uses can be developed as the result of scientific and technical advancement, uses which do not involve the mere displacement of one product by another, the first of these objectives will be promoted. But, in actual fact, as we all know, the campaign to increase such uses is accompanied by strenuous efforts on the part of certain groups to foster this development by the maintenance of prohibitive tariffs on every product for which domestic substitutes might be utilized. To do this would, of course, be to adhere to a general tariff policy which, as the experience of recent years reveals, does not expand, but rather contracts, the home market for farm products. I am in complete accord with Secretary Wallace when he says: "I do not think we should rely exclusively on the possibilities of a sudden industrial discovery opening up the need for the products of 30 or 40 million acres as a solution for the farm problem overnight . . . I do not want to belittle industrial experiments, but I want to be sure the American farmers count no chickens before they are hatched."

As to the other possibility—expansion of general purchasing power—

there will, I think, be unanimous agreement as to its importance. But surely Mr. Renne would not deny that the reduction of trade barriers and the establishment of a healthy flow of international trade is one of the important essentials for bringing this about. At any rate I want to be recorded as believing that this objective will be better promoted by a more equal distribution of *more* national income than by a more equal distribution of *less* national income. The ultimate hope of this program rests, indeed, in large measure upon securing a general recognition of the fact that it will tend to bring about that very expansion of domestic purchasing power—of the home market—to which Mr. Renne alludes. I had thought my paper made this perfectly clear.

With reference to this whole point about the surplus, may I say this: (1) that after all we are still confronted with a condition and not a theory, namely, that we do still greatly need the expansion of market outlets both abroad and at home which this trade-agreements program promotes; (2) that the burden of proof is on whoever contends that a sound program of soil conservation and land use, plus what can be wisely done at this time to expand domestic industrial uses of farm products, would promptly put agriculture in this country upon a net import basis; and (3) that even if we shifted to a net import basis for agriculture as a whole, or *entirely eliminated* the exportable surplus, the interests of agriculture would still be better subserved by a liberal tariff policy than by an illiberal one.

This brings me to the second broad criticism to the effect that I have more or less unwittingly shown, by my own analysis, that not a great deal is being accomplished. Fortunately, this part of the criticism can be more briefly dismissed than the first. The attempt to reduce what I have said to any such terms is, I think, entirely unwarranted by the general context of my remarks. To say that the duty-concessions made on farm products have not been the major cause of the increased imports of farm products, or that the earlier agreements were chiefly with agricultural countries which send us mainly noncompetitive products, does not in the least mean that what has been accomplished is not important. It is hardly necessary to claim that the agricultural and industrial concessions granted in the agreements have been the major factors in foreign trade recovery to date in order to conclude that they are important; nor do I make any such claim. That the effects of the program to date have been obscured and overshadowed by other factors (including such temporary ones as drought and—it is to be hoped—world rearmament), is hardly surprising; but that does not argue away the basic importance of the reductions of trade barriers that have been, and are in the process of being, accomplished. Moreover, I distinctly say at the outset that "the trade-agreements program is a developing program and not to be subjected to finality of judgment at any particular stage"; and I have sought to keep the whole tenor of the subsequent discussion in that vein.

The reader will search vainly for any evidence in my paper of any reference, naive or otherwise, "to the foreign market as the panacea for all our ills" or to any branding "as undesirable all current adjustment programs." Mr. Renne must have been thinking of some other fellow. This observer can readily attest from experience how easy it is, in the course of continuous fighting against misunderstanding and misrepre-

sentation concerning a vital public issue—whether it be trade agreements, the agricultural adjustment program, or something else—to develop a hypersensitiveness that tends to result in one's sometimes "seeing things" that are not there at all.

However that may be, there is one final thing that I do wish to emphasize as directly germane to Mr. Renne's closing observations. On his assumption that "by continued sane and intelligent effort the trade agreements part of our national program may *ultimately* be the most important phase," would he agree with me that the attainment of this objective would be greatly hastened by a better understanding and a more solid support of the program on the part of agriculture than has thus far been evidenced? And if so, does it assist toward such understanding to divert attention to other alternatives in public discussion of this matter and to emphasize that the program is too slow-moving to result in any rapid solution of the problem? If the program is sound—and Mr. Renne seems to concede this—let agriculture as a whole, instead of criticizing and belittling it, get behind it. Then perhaps things can move a bit faster.

RURAL ELECTRIFICATION: PROGRESS AND FUTURE PROSPECTS

JOHN M. CARMODY
RURAL ELECTRIFICATION ADMINISTRATION

Those of us who have an interest in the progress and well being of our agricultural areas have watched for many years with interest and sympathy the efforts of American farmers to secure electricity upon terms which they could afford.

When President Roosevelt, in May of 1935, established the Rural Electrification Administration, he prescribed for it a duty: "To initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas."

Formulating and initiating such a program was a bold experiment, designed to serve the best interest of the farmers. The creation of a program of rural electrification in 1935 by the Federal Government met such an enthusiastic response from our rural people that a year later in response to a rising demand for electric service in rural areas, the Congress passed the Rural Electrification Act of 1936 without a record vote in either house. This 1936 Act provided for a ten-year program of rural electrification and sanctioned the borrowing of $50,000,000 from the Reconstruction Finance Corporation and appropriations by future Congresses of up to $360,000,000—an authorized total of up to $410,000,000 for the ten-year period.

In the spring of 1935 our program was a vision. Today fifty thousand farmers are benefiting from electricity brought to them over rural electric lines built by our borrowers. In the two and one-half years which have elapsed since the Rural Electrification Administration was created, a trained organization has been built up, its functions have been expanded to meet the needs of a developing program, and its policies have been shaped by the forces which the Administration has encountered.

Today the Rural Electrification Administration is bending every effort to add tens of thousands of miles of new rural electric lines throughout the country. It has sixty million dollars worth of construction under way or completed which will serve in the neighborhood of one hundred and seventy-five thousand customers.

The character of our borrowers has had a dominant influence in determining the activities of the REA and the characteristics of its organization. The Administrator, under the Rural Electrification Act of 1936, is empowered to make loans to many different

types of borrowers, but the Act specifically provides that in making loans he shall give preference to public bodies and to cooperatives.

In administering this Act, careful heed has been paid to that mandate. A recent tabulation shows that approximately 85 per cent of our loans have been made to cooperative associations or private non-profit corporations of a cooperative character, 10 per cent have been made to various public agencies, and only 5 per cent to private utility companies. In dollar amount, only about 3 per cent of the funds loaned by REA have gone to private utilities.

These percentages reveal the predominant position of rural electric cooperatives in our program today. After being denied access to electricity for many years by self-named "public service companies," farmers have eagerly sought to serve themselves when this Administration offered them that opportunity.

Many leaders of organizations borrowing from us have been active in the management of rural marketing cooperatives and in consumer cooperatives. For some groups, the management of their new rural electric lines constituted their first venture in a cooperative enterprise. The leaders of nearly all of our cooperative borrowers, however, lacked experience in the management of rural electric lines. It is the lack of this specific experience on the part of so many of our borrowers which has made the character of our organization and the nature of our activities so different from that of so many other federal lending agencies.

The assembling and training of a staff in Washington and in the field which will have a sympathetic understanding of the problems of these cooperatives and the technical competence and tact required to assist them in solving their problems have been a major undertaking in management engineering. Every major unit of the REA organization today has for its prime purpose the rendering of helpful and sympathetic service to our rural borrowers.

The Engineering Division is ceaselessly working to lower the cost of rural lines by simplifying their design and finding more efficient methods of erecting them. Help is extended to the borrower in laying out his lines and in a careful inspection of the finished project to see that the borrower received full value from the contractor in the workmanship and materials employed in their construction.

Local attorneys available to our rural borrowers are seldom experienced in the specialized type of legal work these projects initially required and as a result, our lawyers extend a helping hand to them by performing much of the legal work and closely supervising all details handled by the local attorneys.

Technical assistance is rendered these borrowers in setting up and auditing a uniform system of accounts which will enable both the borrower and the REA to determine at any time the true condition and record of the project.

Further technical assistance is provided by a small staff of specialists in the intelligent uses of electricity, agricultural engineering and home economics. It is the function of these specialists to show farm people how to use electricity effectively and profitably. The field for usefulness of this function of increasing the farm electric load is suggested by the National Resources Committee in "Technological Trends and National Policy." This recent report notes that:

> Experience in other industries indicates that only a beginning has been made in adapting farm operations to economical use of electricity. Further research will make it practicable to *increase greatly the farm electric load so that this power will be very profitable to the user.* Ultimately, there will be a considerable increase in the use of automatic and semi-automatic machinery for such purposes as pumping water and operating processing machinery; and extensive use of heating devices for hotbeds and stock-watering tanks; perhaps, air-conditioning, and, possibly, substitution of electric for other power in field operations. Rapid extension of power lines to serve farms, which has been started under public auspices, will do much to stimulate progress and will make possible introduction of many labor-saving devices in farm homes. The wise use of electricity in agriculture should *lower cost of production, improve quality of produce, lighten the labor of farm people, and make possible more comfortable living on the farm.*

It is obvious that the Government has a continuing interest in these projects after the completion of their construction for, under its statute, the REA is lending up to 100 per cent of the cost of the lines. The terms of these loans include an annual interest rate of 2.88 per cent and provisions for the gradual amortization of the principal of the loan during a twenty-year period. Five-year loans are also being made by the REA for wiring and plumbing and another agency of the Federal Government, the Electric Home and Farm Authority, will finance the purchase of electric appliances of many kinds. This interest is *unselfish* to the extent that there is a genuine desire to assist these projects to provide the maximum amount of service to the farmers along their lines. This interest is *selfish* to the extent that repayments of the government's loans are dependent upon the successful operation of these projects. Specialists will be available to suggest solutions for operating problems which may baffle a project manager and, while REA does not manage any project directly, it reserves the right to direct the activities of any project in the event of mismanagement.

In performing these various functions for the purpose of assisting our rural people to secure electricity upon reasonable terms, the REA is conscious of its relation to other agencies and other policies affecting agriculture. The various measures taken to reduce the burdensome debt of individual farmers and the highly successful efforts of other agencies to increase farm income have all materially assisted our program of rural electrification. When we have been able to guide our applicants in locating their rural electric lines, we have sought to avoid having lines built to serve those areas which land use planning experts in other agencies have advised us should be permanently retired from agriculture.

In extending the benefits of electricity to farmers who are able to pay for it but who have been left without it, the Rural Electrification Administration is working hand in hand with other agencies of the Federal Government to stabilize our agriculture and improve the conditions of rural living. The agricultural experiment stations and the universities have generously made available for our use surveys of areas from which projects have been submitted for our consideration, and results of their research into specific uses of electricity on the farm. Much of this technical work antedated the inception of our agency.

In the year just preceding the establishment of the Rural Electrification Administration, activity in rural line building was stagnant. While dividing up the territory among themselves, building high voltage transmission lines and "paint-brushing" the territory in between, most utilities were too busy exploiting the rich urban markets to listen to the farmers' requests for service. At the end of 1930, 10.2 per cent of our farms were electrified, and four years later the percentage had only risen to 10.9. At the rate of progress shown in the ten-year period preceding 1935, it would take about fifty years to make electric service available to 50 per cent of all the farms in the United States.

During these earlier years, the farmer seeking electric service has had to surmount many formidable barriers before achieving his goal. Few farmers had the means, the good fortune, and the unending tenacity required finally to secure electricity. The attitude of most utilities ranged from reluctance to outright refusal to furnish service upon reasonable terms to the rural areas which they claimed as part of "their" territory. The attorney for a 110-mile project in Montana wrote us: "Farmers to be served by this project have been trying to get electricity for 13 years. After 13 years of continuous effort, a single extension of four miles represented their only success until REA funds were available."

The farmer was often asked by these private companies to pay more than the value of the electric line built to his farm, to give the private utility title to the line, and to guarantee a high minimum monthly charge for a long period of years. If he could meet these demands, the farmer could then have electricity by paying an exorbitant rate for the energy he used. Piecemeal building, lines of heavy costly construction—known in our shop as "battleship" construction—and excessive overheads required by inflated capital structures all added to the bill the farmer was required to foot if he was to secure service.

Faced by these barriers, the farmer was frustrated in his efforts to secure electricity at a reasonable cost. Every move of the private utilities seemed designed to check him, and if his state had a public service commission with jurisdiction over rural electric service, it often seemed impotent to render him effective aid. Some of the most enterprising farmers pooled their resources and established small electric cooperatives and despite their high cost of wholesale power some forty of these cooperatives survived the depression. In many states, however, the statutes did not permit the establishment and effective functioning of these cooperatives. As a result of these conditions the farmer found himself unable to secure electricity from others and not allowed to provide his own service. Is it to be wondered at that he lost hope of ever obtaining the benefits of electricity for his family and his farm?

Hope of electric service was restored to hundreds of thousands of farmers by the establishment of the Rural Electrification Administration. The Administration surveyed the rural scene and it saw in clear view the many barriers to rural electrification. It tested these barriers and discovered how artificial and unnecessary many of them were. It hammered at these barriers—the tops of some of them crumpled, and other barriers collapsed.

In a few months time, after our program was under way, representatives of many of the utilities which had been reluctant to provide electric service to the farmer on any terms, were driving out to his farm and pleading with him to take service from them, on his own terms, rather than to join a local cooperative group seeking to build its own lines. The magic spur of competition—real, potential, or fancied—caused these utilities to reduce drastically or to eliminate all charges for the extension of rural lines, to slash rural electric rates and to lower minimum bill requirements.

The effect of potential competition can be measured in New York State. Not a mile of line financed by REA has been built in New York State. The system of the Niagara Hudson Corporation

covers a large portion of the state and for some ten years it had built rural lines under the terms of the Adirondack Plan. When a new rural line averaging four customers per mile was proposed, each customer had to guarantee a minimum monthly bill of six dollars. Shortly after REA was formed and there was talk of financing cooperatives in New York State, this required minimum was dropped from six dollars a month to two dollars a month. The private utilities benefited from this more liberal policy and over 20,000 additional farms in that state have been electrified.

The effects of real competition on rural electric rates are apparent in many other parts of the country. The following is an illustrative incident. In the fall of 1935 a private utility in Wisconsin applied to the REA for a loan for the purpose of building rural lines. The rural rates of this company were so high as to preclude the possibility of a loan by REA and when the company refused to lower them its application was rejected. A year later, after our program in Wisconsin was well under way and many cooperative lines were being built, this former unit in Insull's utility empire filed with the Public Service Commission of Wisconsin a *lower* rural rate which results in a saving of $2.00 per month to customers with a monthly consumption of 50 kilowatt-hours. The amount of this saving, incidentally, is the exact amount for 50 kilowatt-hours a month paid by farmers served by REA-financed rural electric cooperatives using TVA energy.

The barrier of excessive charges for wholesale energy for these new rural line projects is gradually being broken down. Some of the projects first financed by REA had to pay from two to three cents per kilowatt-hour for wholesale power. For many of our projects this cost today is one cent or lower. Wholesale energy is the largest item of cost in connection with the operation of these rural lines. Inasmuch as 98 per cent of this energy is purchased from existing private utilities, TVA and a few municipal plants, any reduction in the wholesale rate adds greatly to the pay out possibilities of these lines.

Application of the principles of mass construction, together with the improved design of rural electric lines, has nearly halved the cost of rural lines. Prior to the advent of REA the cost of rural lines was $1,500 to $2,100 per mile. The cost of all lines financed by REA over the past two and one-half years averages approximately $970 per mile. With rural line construction costs dropping and many recent projects costing under $800 per mile, it is anticipated that in 1938 construction costs will be materially lower than the average to date.

Even without such tangible achievements as the foregoing, the REA would have been a potent force in breaking down the barriers to rural electrification. Its mere existence has provided a focus for centering public spirited interest in rural electrification, a place for exchanging information, a clearing house for ideas.

Public utility commissions seeking to serve the interests of the farmer received staunch support. In a number of states, notably Pennsylvania, Tennessee and Wisconsin, recent commission orders have effectively blocked efforts of the private utilities to disrupt new cooperatives by building "spite" lines. The occasional undegenerate state commission found an informed and articulate rural constituency exposing obstructive and antisocial tactics to public censure. As soon as the majority of farmers were afforded an opportunity to make an intelligent appraisal of the rural electrification situation in their state, legislators sensed a change. Impeding legislation was swept away and enabling legislation has gradually smoothed the legal path of the rural electric cooperative movement.

The cumulative effect of these influences is reflected in the accelerated program of the Rural Electrification Administration and in the record-breaking rural electrification activities of the private utility industry. In midsummer of 1936, thirteen and one-half months after its inception, only 2,000 miles of rural line, to serve 9,000 customers had been released by the REA for construction. Seventeen months later, the middle of this December, approximately 60,000 miles, to serve 178,000 customers, were under construction or completed and out of $82,000,000 of allotments, over $73,000,000 was covered by executed loan contracts. These allotments include over 330 rural electric line projects located in 41 states.

Included in these allotments are allotments for two million dollars for generating plant and equipment—most of them authorized when neighboring private utilities were unwilling to offer wholesale energy to our projects at a reasonable price. Another million for generating plants was similarly allotted, but the allotments were rescinded when the private utilities adopted a more generous attitude toward these rural cooperatives.

In these ways and in many others REA has proven a powerful stimulus to farm electrification by the private utilities. Letters in our files from many of these companies credit us with the success of much of their recent activity in the rural field. In the two years 1933 and 1934 these utilities electrified a total of thirty-four thousand farms. In the first two and one-half years of the REA, they

electrified *over three hundred thousand farms and today one farm in every six in this country enjoys some of the benefits of electricity.* These figures afford a measure of the progress of rural electrification in recent years.

The stream of money both private and public which has made possible this unprecedented progress has served a sound productive purpose. In their construction, these lines provided uncounted jobs in the field and in the factory and now that many of them are completed they add directly to our national employment by providing thousands of steady jobs in their maintenance and operation. Further employment has been provided by the fabrication of house wiring materials and electric appliances for hundreds of thousands of newly served farm homes. Most important of all, this increased rural electrification is an important contribution to farming and to farm living.

There are, however, many unmistakable signs of continued progress toward the goal of more complete rural electrification. There is a powerful nationwide demand for new rural lines—a demand, the satisfaction of which will require hundreds of millions of dollars of distribution line construction.

It is reassuring to note that agricultural economists expect relatively satisfactory levels of agricultural income and rural purchasing power to continue, for the farmer's increased purchasing power is an essential element in his ability to share effectively in the benefits of rural electrification.

The continued strength of senior security issues of leading utilities affords evidence of the continued ability of these companies to finance further construction upon favorable terms.

The Federal Government continues to be faced with the problem of providing productive employment for this nation's labor reservoir. The current recession of activity in industry makes imperative new orders for materials and equipment to maintain employment and profits.

Self-liquidating loans for constructive rural electrification projects provide productive employment and help to stimulate industry at a very modest net cost to the federal treasury. Furthermore, for every dollar for rural line construction the Federal Government *lends*, the farmer *spends* another dollar for wiring his farm and purchasing appliances.

Under the Rural Electrification Act of 1936 Congress has authorized the appropriation during each of the next eight fiscal years of \$40,000,000. Each year's appropriation, however, will be subject to the action of Congress at that time. The precise amount which

will be made available each year will really depend upon the relative strength of the opposing forces of those favoring a treasury surplus regardless of its effect upon our national economy and those favoring a constructive program of government lending. It seems probable that the shifting balance of these forces will in a large measure determine how great a contribution the Federal Government will make in the next few years to the electrification of rural America.

In conclusion, it is gratifying to note that in the past two years electricity has been brought to more farms for the first time than in any two previous years. The number of farms securing electricity for the first time in 1937 is approximately 50 per cent greater than the number for 1936. The REA construction program is in full swing.

One of the most difficult jobs we have as administrators is to explain to individual farmers and farm groups who see others getting electricity through REA aid and who are themselves determined to get it that funds are not available to electrify every unserved area in the United States immediately. The character of these people and their new found ability to direct their efforts in organized fashion indicates quite clearly that they will not be satisfied to endure drudgery common to farm life without electricity. If I have learned nothing else in the strenuous eighteen months that lie behind me in REA, I have learned that rural people are on the march for economic and social justice. They will win. Part of their victory will be abundant light and power. The movement is strong and swift.

ECONOMIC ASPECTS OF RURAL ELECTRIFICATION

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A long time ago, a poor boy found an old lamp. By modern standards it wasn't much good for producing light. But its young owner had only to rub the lamp in a certain way to summon genii of immense power to do work which would have been impossible with his own limited resources.

That trite figure suggests the significance of rural electrification. Usable forms of electricity and dependable equipment for its use are relatively very new in agriculture. But already this electric light, this new mechanical servant, is showing possibilities of some results even beyond the powers of Aladdin's lamp.

Aladdin didn't have to pay for his lamp. It was super-economic; it cost him nothing, but brought him riches with no effort on his part. Electric light and power, however, are severely economic. I take it that this discussion of Economic Aspects of Rural Electrification concerns at least two questions, viz., how much is rural electrification going to cost? and, who is going to pay for it?

Since all costs will be roughly proportional to the number of farms served, the first step must be an estimate of the number that may be served. There are now about 1,200,000[1] farms receiving central station current; this does not include those with individual lighting plants. Subtracting this number from the 6,502,280 farms having occupied dwellings,[2] it is evident that some five and one-third millions of farms are still without electric service. Of these, 282,300[3] are within serving distance of existing lines. Counting this group as having service, although they have not availed themselves of it, leaves five million unserved.

Under present systems of distributing electric energy, it is unreasonable to propose that *all* farms be served with central station current. Poles and wires cost too much for that. What percentage, then, shall be considered in looking at the job to be done? Rhode Island is reported as having over 90 per cent of its farms electrified. In New Hampshire, where a well-planned and coordinated rural electrification program has been carried on for a number of years, those promoting the work estimate the limit of reasonable service on a non-subsidized basis at about 80 per cent of all farms in that state. In connection with land classification and planning in New

[1] Edison Electric Institute, estimate of November 6, 1937 (in personal letter).
[2] 1935 Census.
[3] E.E.I., August 26, 27 from *Public Utilities Fortnightly*, September 16, 1937.

York State, estimates have been made on the construction necessary to serve all farms in areas of permanent agriculture. This would require electric lines paralleling about 70 per cent of the roads in such areas and would provide service for nearly 90 per cent of all farms in the state.[4] A personal estimate, by one who has been close to the development of rural lines in New York, indicates that 75 per cent of the farms of the state can be reached by central station service without public subsidy.

Similar estimates from Ohio, Vermont and North Carolina indicate 75 per cent, 50 per cent, and 25 per cent for those states respectively. The State Rural Electrification Committee in Illinois expects "a potential saturation on a non-subsidized basis of about 50 per cent. It will be nearer 80 per cent in the northern section of the state and 25 per cent in the southern part."[5]

For the nation as a whole, about 25 per cent of all farms will be served by the end of 1937, if those having service available are counted with those actually connected. If 75 per cent may be aimed at for ultimate development, there remain 50 per cent to be served. More will be said later about the choice of this percentage. Fifty per cent of the 6,500,000 farms having occupied dwellings is 3,250,000 farms. Such a number would require something like 1,000,000 miles of distribution line. Line costs vary at least 100 per cent from lowest to highest, but $1,000 per mile is near enough for estimating average cost of modern, well-engineered rural lines. Thus, the cost for lines alone would be $1,000,000,000.

There seems to be a difference of about 20 per cent between the number of farms with current available and farms actually connected to the lines. A survey of 9,574 farms[6] on existing electric lines in New York found 81 per cent of them connected to the lines. This 81 per cent was an average for the total; the range varied from 52 per cent of 695 farms classed as "poor" to 98 per cent of 219 farms classed as "excellent." These New York figures agree almost exactly with those reported for the whole country. A recent survey reported by the Edison Electric Institute discovered 282,300 farms within reasonable connecting distance from high lines but not connected to the lines. In other words, only about 80 per cent of farms in served areas are actually connected. If 80 per cent of 3,250,000 should connect to the new lines, there would be 2,600,000 new customers.

After the distribution line is built, the customer must wire his buildings and buy equipment. Reports on about 150,000 new cus-

[4] Cornell Extension Bul. 372.
[5] Letter of November 5, 1937.
[6] Cornell Extension Bul. 372, March, 1937.

tomers added on rural lines in 1936 (60,000 non-farm and 90,000 farm) show an expenditure per customer of $210 for wiring and appliances ($69 wiring, $141 appliances).[7] Agricultural engineers usually consider the necessary investment for a well-equipped and adequately-wired farm as two to five times greater than that figure. But if $210 is accepted as a minimum investment per customer to get started in the use of electricity, the total for 2,600,000 new customers would be $546,000,000. This would rise to a considerably greater total before many years of use as customers bought more equipment.

Another major investment required would be additional plant and generating capacity. The average use of current per farm for the United States as a whole has risen to just about 1,000 kilowatt-hours annually.[8] It is likely that such annual use would not be forthcoming immediately from the addition of 2,600,000 new rural customers all at one time. But the trend of use by those already connected to lines is rather steadily upward, having risen from 586 kilowatt-hours per year in 1926 to 941 in 1936. Further increase of use by this group is to be expected; and, before the last of the new customers yet to be added are served, those going on earlier will have been on lines enough years to be reasonably heavy users. Furthermore, the increase in average use between 1926 and 1936 came during a period of absorbing as large a *percentage increase* of new farm customers as would be the percentage increase of adding nearly three millions to those now served. So, it seems necessary to assume that there will be required generating capacity for at least 1,000 kilowatt-hours annually for each new rural customer. And it would have to be built, for the power industry does not have reserve capacity to absorb such new business. Based on some figures presented recently in a trade journal[9] of the electric industry, the addition of plant and generating capacity to produce 1,000 kilowatt-hours annually per customer for diversified loads would require an investment of a little more than $150 per customer. This investment for 2,600,000 customers would mean $390,000,000.

The total of the three items, line costs, customer equipment costs and new generating costs to serve 2,600,000 new customers comes to $1,936,000,000, or roughly $750 per customer. Unless the farm customer is to be subsidized, this means an average investment of $750 which he must eventually pay, part of it outright

[7] Edison Electric Inst. Bul., October, 1936.
[8] U.S.D.A., Miscellaneous Publication No. 264, p. 13.
[9] *Electric Light and Power*, October, 1937, p. 49.

and interest and other charges on the balance, the costs of carrying which, if not paid, he must bear indefinitely.

How will such a bill, individual and national, be paid? In many cases, it will be paid by the individuals immediately benefited, as has been done, or is being done, by the farms already connected. But there are three major considerations which urge upon us the necessity of finding ways to carry out this immense undertaking as speedily as possible, without necessarily waiting until each individual can immediately pay his share. These three are (a) the possibility of eliminating unnecessary labor in the home and on the farm and bringing such improvement in standards of living as electricity makes possible; (b) the possibility of intensifying the productivity of many farms and farming regions; and (c) the influential part which electrification may play in the protection of land values and social institutions in areas where permanent agriculture is to be maintained.

Household applications usually come first in any thinking about electrification and in actual practice. To make farm life more comfortable, two utilities are necessary. These are lights and running water. They are best supplied by electricity. But these two do not consume enough current to pay for rural extensions. Adding the usual minor household equipment, such as radio, washer, iron and vacuum sweeper, does not add much to the electric load. These uses will not support rural electrification.

Several larger uses apply directly to the problems of country living and would go far toward supporting the electrification of a large percentage of farms if adopted on even a moderate scale. These uses are refrigeration, water-heating, cooking, and summer cooling of houses. But here engineering and the development of necessary equipment have lagged behind, largely because of urban-minded sales policies.

Refrigeration probably holds first place in the desire of farm women. For providing an adequate and attractive diet, as well as easing the housewife's work, refrigeration increases in utility and importance in proportion to the distance from town and stores. But to do the job adequately for farm conditions requires a different approach than is represented by the present offerings of the manufacturers. What the farm home needs in a refrigerator is capacity—both cubic feet of space and heat-absorbing capacity. To get such capacity in available models, it is usually necessary to buy a lot of extra de luxe features which have little or no relation to the primary job. After all, chromium plating, porcelain finishes,

and incidental gadgets are not necessary in the fundamental tasks of the farm household.

A refrigeration engineer in the State of Washington has developed and has used for two seasons a household refrigerator which goes beyond storing left-overs or making a few ice cubes. His box is a work-a-day affair of 45 cubic feet, heavily insulated and operated by a slow-speed, heavy-duty, one-third horsepower unit maintaining temperatures of zero to twenty degrees below zero.[10] With that outfit practically all the food needs of a large family have been taken care of throughout the year. It has meant the elimination of canning, the food being stored by freezing, with a great reduction in work and, in most cases, a superior product. A machine of this size has permitted him to do such things as buy butter at twenty-six cents to be used later when the price went to forty cents. Meat, eggs, fish, poultry, about three hundred quarts of fruits and vegetables, all went into the same intense cold to come out weeks and months later as needed. The operating cost was estimated at "considerably under $1.00 per month." Granting higher electric rates in other parts of the country, the operating cost still would be well within the capacity of most families to pay, when the economies made possible by this system are taken into account.

The ordinary farm home needs large quantities of hot water. A well-insulated tank with a low-wattage heating unit for nearly constant input of current would solve the larger part of the hot-water problem. Such a unit should cost less than the more complete, more flexible but more expensive units usually sold. The Hydro-Electric Power Commission of Ontario supplies to its customers equipment of this sort without capital cost to the consumer. Current used for this service is paid for at a low flat rate dependent on the capacity of the heating element.[11]

Electric cooking must come at low rates to compete with other fuels on a straight B.T.U. basis, but its convenience, including automatic control, gives it an advantage over other means of cooking. But, current sales efforts and manufacturing are not meeting the needs of the great mass of farm homes. Electric ranges are better in many respects than their predecessors of a few years ago, but price is being held up by super refinements and gadgets not essential to the great job of cooking meals for millions of farm families. What is needed is a stove with the capacity of a range

[10] *Ice and Refrigeration*, June, 1937.
[11] "Statement E" from Twenty-ninth Annual Report, The Hydro-Electric Power Commission of Ontario.

but comparable in cost to an oil stove. The two essentials of electric cooking, viz., resistance wire and insulation, are not expensive.

Nothing would add more to the comfort of farm families, and probably to their health and efficiency, than a cool house to go into after working in the outdoor heat. The cost of modern air-conditioning equipment is prohibitive for nearly all farms. But a line of development which would be helpful throughout most of the country, especially in the regions of drier air, is indicated by the experiences of one California power company. Something like 1,000 horsepower came on its lines in 18 months in small fan motors, as used in what are called locally "Desert Coolers," and the potential field may easily add another 2,000 horsepower within the next few years. "The cooler in its present stage is simple in construction and can be assembled of local materials, excepting the motor and fan which are being purchased from mail order stores or salvaged from some motor-operated device."[12] The significance of air-cooling equipment, if cheap enough, in terms of what it would do for rural electrification in nearly all sections of the country has been indicated by the experiences of this one company.

When we leave the household and turn to farm productive uses, we find that the adaptation of electricity to farm work is just getting under way. Two factors have retarded this development. These two were the cost of electricity, and needed engineering developments of equipment and methods. In both cases recent changes have been favorable.

The effect of rates is very definite and forceful. There are rates at which some things can be done economically by electricity while higher rates make them prohibitive. This does not apply to all applications. For instance, electric pumping of water for ordinary household or barn uses is cheap at the price even on quite high electric rates. But on a job using much more current, such as milk cooling, it is cheaper to cool with ice if electricity is above a certain price. What that price is will vary according to several factors, including climate, cost of ice, and efficiency of refrigerating equipment. The same principles apply to most farm uses; e.g., a milking machine may be run on a high rate because it displaces labor, but a dairy sterilizer must compete with cheaper sources of heat. The fact that the consumption of electricity per connected farm has doubled in the last ten years is undoubtedly due in large measure to lower electric rates and to adjustment of rates to classes of service.

[12] C.R.E.A. News Letter, December 10, 1936.

Equally important are the developments of new farm uses of electricity and improved equipment. Electric equipment for heating hotbeds is now developed to a point of efficiency and dependability. By using lights, more and more florists are "scheduling" some of their crops to coincide with certain holidays; recent experiments are even refining this application to lamps producing selected, limited spectra. Some promise of trapping insects by use of lights is indicated by other recent experiments. Electric lights for poultry are not so new, but they have become almost a competitive necessity on commercial poultry farms to stimulate egg production in seasons of short days and higher prices. Irrigation, as supplementary water supply and crop insurance in humid areas for an expanding list of crops, is being made possible by development of cheaper piping and distribution systems; electric pumping is peculiarly well adapted to irrigation.

Such a list of new farm uses, which will help to swell the load on rural electric lines, could be extended to some length—the length depending on how far one departed from the well-proven toward the prophetic. One factor in the situation, one reason some of these "new" uses are new is the lag in engineering. A good illustration of this is the grinding of grain.

One of the most intriguing places of my boyhood—and probably for many of you—was the old water-power grist mill. What mystery there was in the rumblings, splashings and groanings under the floor; what interest in the slow-moving wheels and dim, dusty room. But to a busy farmer the time required to haul the grain to the mill, wait in line for his turn, and haul the grist back home was both irksome and costly. With the gasoline engine came the chance to grind his grain at home, either with his own outfit, or with portable grinders mounted on auto trucks which followed regular routes, bringing the mill to the farm instead of the grain to the mill. But both ways there still were disadvantages. The home outfit in usual sizes was too expensive for many, and the custom grinder required being at the barn at times when important work was pressing elsewhere. A few agricultural engineers went at this problem and have developed some very small grain mills run by fractional-horsepower electric motors. These outfits are cheap, efficient and can be adapted to automatic operation; once the bin or hopper is filled, they grind away without attention and stop when the hopper is empty.

Machines of this sort are good both for the farmer and the power company. It gives the farmer a piece of labor-reducing equipment at a low investment, and gives the power company a relatively

sustained load over a long period instead of a heavy peak-load for a short time. Electricity has three valuable qualities illustrated here: It is always ready and available; it makes many jobs automatic or at least greatly reduced in labor requirement; and it can be set going in small amounts to whittle away at a job formerly done by larger and more costly machines. These are fundamental data of the application engineering of electricity which have been taken advantage of somewhat slowly but which have considerable importance in the economic aspects of rural electrification.

You will have noticed, perhaps, that my illustrations of farm applications of electricity have been concerned with fruit, vegetable, poultry, dairy or others of the specialized, intensive types which are common in the coastal regions of the United States and around the inland cities. But what of the other types of farms which make up the great body of American agriculture, viz., the smaller general farm, and the larger farms devoted chiefly to growing the great staple crops? The smaller general farm *as operated* may not have sufficient activity along any one line to warrant much investment in electrical equipment for farm productive purposes or enough use for it to produce much load. The large corn, grain or cotton farm *as operated* may have little productive activity to which electricity may be applied, and the larger farms require longer electric lines per customer and consequently larger use per customer than in more thickly settled country.

The possible household developments already discussed may be sufficient in many areas to build sufficient load to justify electrification. Obviously, in those areas surrounding industrial centers where *rural residence* rather than *farming* is characteristic, the domestic uses of electricity must carry the load. But, for true farming, there may be added to these household uses some of the farm uses which are nearly universal to all types of farms, such as barn lighting and water pumping. Then add to these uses one or more of three other possible lines of long-time development, and the problem of electrifying much of even the sparsely settled regions becomes less difficult. These three developments are irrigation, community reorganization and intensification of farm productivity.

The last few years have demonstrated that much of this country is subject to droughts of great extent and severity. Yet many regions have water supplies within economical pumping depths. It would seem desirable in the development of drought-relief and drought-insurance programs to investigate the extent to which farming can be shifted in all areas—so that, where possible, every

farm would have some irrigated crops along with dry farming—a program of intensifying on fewer acres, putting some back to grass or trees. The significance of such a development for rural electrification is that the pumping load would be roughly in inverse proportion to the annual rainfall. Since population density is also roughly in the same inverse proportion to the annual rainfall, irrigation could provide the necessary electric load where population is light.

Just how effective irrigation is in supporting rural electrification is shown by the fact that the average energy consumption on California and Arizona farms is respectively 5 and 6½ times greater than the next nearest state average, and 12 to 15 times greater than the national average. Or looked at another way, irrigation makes electrification possible in areas of low population density. There is an area in the Texas Panhandle, centered around an old cow town named Hereford, which was at the lower limit of rainfall for wheat growing even in the better weather before the dust storms. Recently, an electric line 100 miles long has been built there to serve just 100 customers. The answer—irrigation by pumping from wells.

Another long-time development possible for areas of low population density and for areas of extensive farming is replanned and resettled communities. Corn, small grains and some systems of raising cotton do not require that each household live in the center of the land operated by that family. Modern transportation is making the operation of land several miles from home quite commonplace. A long-time program could encourage all persons within a designated area to live on or near one road. Such a shift would increase the density of population in a restricted region and eliminate the need of electric service in a strip of contiguous territory from two to five or more miles wide.

How this might work out has been demonstrated by the Resettlement Administration on one of its projects in Arizona. This project was established on 3,400 acres of good irrigated land. It is reported that, at the time of purchase, on one of the properties, eight to ten families were "living under conditions as degrading as any pictured in *Tobacco Road*'," [13] and that their condition was not different from that of many others in the vicinity. Obviously, they were not very promising customers for electricity. By resettlement, the living conditions of the farmers on this project are

[13] Rural Housing Problems, Walter E. Packard, Resettlement Administration, April, 1937 (mimeographed).

greatly improved, and it is estimated that their income will be quadrupled. The houses are grouped in a village in the center of the property, permitting the land to be operated as a unit with labor-saving devices. Each family has a home and two or three acres of ground. Running water and electricity are supplied to every home. The houses are made of adobe and are reported to cost about $1,800 fully equipped with baths, lavatories, sinks and washtrays.

The third development which must be considered is the possible intensification of productivity of many farms and farming regions. The appeal of electrical equipment usually is labor saving. But the introduction of electricity to a farm may permit more labor to be occupied profitably thereon, or the same labor to produce more efficiently. When a dairy farm changes from selling milk wholesale to producing bottled milk, there is a transfer of labor from the city back to the farm accompanied by a higher cash income for the product of the farm. Electricity is a great aid in making this change. Refrigerated apple storage on the farm helps to smooth out the farm labor peaks, and provides remunerative work for a labor force otherwise idle during the winter. Wherever land is irrigated, the total labor per unit area is increased but there is an increase in unit area productivity. The addition of running water and some other labor saving equipment may permit changing a grain farm to a stock farm.

Any cleaning or grading or preliminary processing of a farm product through use of power and labor on the farm means less cost of transportation and lower cost of final processing. Most such processes are quite strictly limited when they must be done by hand. However, the addition of very small amounts of power per unit often makes the resulting product worth much more in the market.

Mrs. Ralph Borsodi, wife of an economist, having raised a family in a productive country home, has demonstrated that the use of electric equipment will permit certain processes in food preparation and certain crafts, such as some grades of weaving, to be brought back to the farm home with a fair return on the investment and a fair labor income.

The decentralization of industry has been talked of for some time. This has usually been thought of as small factories in rural communities. But may there not be an opportunity to produce many manufactured articles of simple construction, or to fabricate certain parts of a more complicated assembly on the farm—using

small, electrically-driven machinery and employing farm labor, otherwise less productively occupied, and using space available in farm buildings, instead of building equivalent factory space?

Obviously, some of these developments depend on population density, nearness to market or type of farming. But within them and others like them are indicated possibilities which have quite general application—even in regions remote from market or in non-specialized agriculture. In a word, it amounts to increasing the productivity of the farm worker by supplying him a form of energy from which he can get light, heat or cold, and a marvelous variety of mechanical operations.

This brings us to the question, how far should rural electrification go?

Most of the lines now in rural areas have been built on purely economic grounds—more exactly, on *businesslike* grounds. By that I mean that few lines have been built without rather good assurance of profit to the company from business soon to be realized from the extension. On this basis, rural electrification has progressed slowly, only twenty-two[14] states having (at the end of June, 1937) more than 20 per cent of their farms served, and only thirteen states above 40 per cent. Special conditions of population density and availability of power in most of those top thirteen must be taken into account. On this "businesslike basis," electric service will reach only part of our farms, estimates ranging from as high as 75 per cent for the Northeast down to 25 per cent in the Southeast and South.

If a widespread and consistent program of rural electrification is to be carried out, will it be on an economic basis—in the narrower sense of that term—or may it be justified otherwise? Is it to be taken only to those favored areas able to pay immediate returns on the necessary investment? Must further development look to increased efficiency of agriculture alone to pay the bill, and wait for that efficiency to come about before the development can be effected? Can the electrification of rural America be considered finished until at least 75 per cent of all farms are served? To answer these questions, we must leave the realm of immediate costs and returns and venture into broader and more controversial fields, into interrelated problems of rural sociology, regional economics and land utilization. I can only suggest these relations at this time.

Electricity has such a direct bearing on the scale of living that it will probably act as a sort of *filter* for inhabitants of rural areas. A farm having electric service will be more desirable than one to

[14] Edison Electric Institute, August 23, 1937.

which it is unavailable. The farm with service will be relatively higher priced, drawing to it the more efficient, the more progressive, those who will work harder to attain the desirable things of life. The reverse movement will occur in adjacent areas without electricity.

Such filtering will inevitably affect land values and all local institutions. The value of a school, for example, is not determined by the cost of the building. Most of the value of a school is social. Any influence which diverts the better teachers to one of two positions, otherwise nearly equal, works to the advantage of one school, to the increase of its value, and, thereby, to the disadvantage, to the decrease of value of the other. All other social institutions, probably including the church, are affected in the same way. With a decline in the strength of local institutions, population deteriorates by emigration of the best of the young people, land values decline and taxable property diminishes, thus further weakening the community.

Electric service is, of course, only one such filtering influence; others are improved roads, telephone, frequent mail service. Strong-minded individuals can and do live in inaccessible places without any of these services; the great mass of better-than-average persons will not. Of all these services, electricity is probably the one most desired and most influential, because it has so many possibilities for making life easier, more pleasant, more efficient.

At the present stage of rural electrification in this country, it still remains for many areas an unused force which may make land utilization programs possible. Road programs have already gone so far in many regions that they are much less available as a land utilization control measure. Electric line extensions should depend on sound land utilization research; they should be recognized as instruments for implementing desirable land use developments.

This close connection between land values and the influence of such services as improved roads and electricity is being recognized by some states and made part of their formal land utilization programs. In New York there has been adopted the thesis that "all of the farms in the land classes that will remain permanently in agriculture, should be served not only by hard roads but by electricity and all other modern services."[15] In New Hampshire, one of the leading states in rural electrification, the case has been stated thus by George Putnam, president of New Hampshire Farm Bureau: "Isn't it advisable for all of us to get together and find some way in which this necessary (electric) power will be available to

[15] Cornell Extension Bul. No. 372.

all farms that are of such quality as to warrant continued operation? I believe we are approaching a time not so far distant when our answer to that question will be 'yes' . . . Should we give consideration only to the probable immediate return from the power investment or should we give consideration to whether or not it would be in the public welfare?"[16]

I have touched only a few of the economic aspects of rural electrification and barely suggested its social significance. The purely economic benefits to be obtained in the forms of more efficient farming, intensification of farm productivity, insurance against some of the natural hazards of farming, and increase or protection of property values urge a more directed program of rural electrification than has prevailed in the past. When the social values directly involved are examined, we are driven to consideration of the electrification policies prevalent in several other countries. These policies were described in detail by Hans Staudinger last winter before the American Economic Association. They may be summarized in these words, "(they) placed in the foreground the socio-economic idea of 'general provision of electricity,' and they removed the emphasis from the profit interest in this utility; that is, they demanded that the rates be adjusted to purchasing power and that service be extended as universally as possible."[17]

Discussion by R. S. Kifer

Bureau of Agricultural Economics

The excellent paper just given by Mr. Pinches on the economic aspects of rural electrification emphasizes the proposition that electric power, delivered to the farm under control and in usable volume is not a free good. Someone must pay, not only for the installation of fixtures, for equipment, and generating plants but also for repairs, replacements and current used. As stated at the outset, the use of electricity is "severely economic" and we can regret that the unpleasant side or the aspects of cost to the individual was not developed as completely as were the benefits and the utility to be derived from the use of electricity. Unfortunately the body of information on which such a discussion might be based is severely limited.

No one, I think, will question the desirability of possessing on our farms the varied advantages and added comforts to be derived from electric power. For certain uses, lighting for instance, farmers have been willing to pay relatively high rates, but in the evaluation of different types of power for farm work the valid comparison would have to be made between electric and the alternative sources of power; between electric facilities and substitute facilities rather than between electricity and no

[16] From paper read at New England Rural El. Institute, March, 1936.
[17] *The American Economic Review*, March, 1937 (Supplement), p. 254.

facilities at all. Even electric lighting must replace effective gas or oil lamps as well as ordinary wick lamps and candles. The alternative to electric refrigeration is as likely to be ice, or even gas refrigeration, as it is to be the spring house or the bucket lowered into the unused well. The electric range replaces not only the old coal or wood stove which so effectively heated the kitchen but also must replace the more convenient oil or gas stove or perhaps the modern heat-conserving coal range. For farm work, electric power competes not so much with laborious hand labor as it does with power from small internal combustion engines. In the field, where most farm power is used, it does not yet compete at all.

Approximately 1,200,000 farms are now receiving central station current. The estimate is reached that the farms provide 2,600,000 potential new customers. On the basis of equipment on farms now using electricity, an average investment in central plant, transmission lines, wiring and equipment of $750 per farm is reached. Certainly this figure of needed investment, even if it must be borne by the consumer of current, is no staggering sum when compared with the advantages to be had from it. This sum, however, includes only $141 for appliances and fixtures and it is evident that the uses are limited to lighting and minor household equipment.

In this connection, Mr. Pinches makes the very significant statement that lights, pumping water for the household, and the minor household equipment do not provide uses which will support rural electrification. The larger uses of current, namely, refrigeration, water heating, cooking, summer cooling of houses must wait the development of suitable equipment. Moreover, these larger uses of electric current except air conditioning meet keen competition, from the cost standpoint, from non-electrical equipment and, in the country, summer cooling of houses, except in certain locations with excessive temperatures, is less important than in the congested urban areas.

Yet rural electrification is proceeding at a remarkable rate and if farmers on the lines are to benefit from electrical facilities they must use equipment now available. If the advantages of lighting, heating, cooling and saving labor are to be weighed against the costs, the farmer should include as an item the cost of needed equipment. This will give him the agricultural engineers estimate of "2 to 5 times the average figure" as an investment. If the electrical equipment includes a refrigerator with 7 cu. ft. capacity, a 4-burner electric range, a washer, a water heater, a small water pump and pressure tank (less plumbing) and a 5 h.p. motor at prices taken from the lowest reported in the REA guide the cost of equipment alone would be upwards from $1,000. This would not include farm equipment needed to make use of the electric power in farm work. It would, however, place the farmer in position to enjoy some of the blessings of electricity.

I have no data on depreciation of equipment or on usual repairs. These items may be, however, quite significant. The services of an electrician or expert repair man are frequently needed to keep automatically operated equipment in working order. The cost of current will vary but an estimate of an annual cost of $150 to $200 per farm to operate and maintain the equipment listed seems not unreasonable.

Again this is certainly no terrifying figure but it does assume consider-

able significance when placed opposite the reported cash receipts less cash outlay of $552 per farm for the United States in 1935. Even the figures of $630 per farm for the North Atlantic States or $752 for the East North Central States are not so large but that the payment for benefits of electrification would reduce the sum available for other items of consumption. The annual bill would have to be much less before the net cash figure of $460 per farm in the South Atlantic States would provide for widespread use of rural power lines. There is, I think, more than casual relationship between the income figure and the estimate that 25 per cent of North Carolina farms could be reached with power lines without subsidy.

Obviously, this estimated annual cost of electrification should not be considered an absolute addition to the farm and farm family expenditures. It is conceivable that some farmers now pay as much or even more for the same facilities derived from other sources. Before an attempt to accurately balance the operating costs, repairs, and replacement of electric equipment, against advantages of time saved, effectiveness of work done, and satisfaction gained we need much more data than I have been able to find in the literature on the subject.

Even if data on relative costs were available it would be futile to attempt to evaluate in dollars the advantage of the use of electricity in the farm home. Health, ease, comfort lack a standard of measurement that can be applied in quantitative economic analysis. The uses of electricity for consumption are limited by farm incomes and comparative costs of substitute equipment.

The adaptation of electrical power to general farm usage has made less progress than for use in the home. Mr. Pinches cites the reasons as cost of current and lack of equipment for general farm work. Except on certain types of intensively operated farms there has been little adaptation of electricity for use as farm power.[1] The total number of power units on farms in 1930 were estimated to equal 70 million horse power. Of these about 2 million were derived from home electric units and from central power plants. Stationary internal combustion engines made available about 3 million horse power. Although rural electrification had made tremendous progress since 1930, it has probably served to increase the power available rather than to replace horses, tractors, trucks, or autos. Where lines are available it could replace stationary power. Rural electrification can, under present type of farm organization and development of equipment, make only minor inroads on customary forms of power. The electrically operated milking machine competes not only with hand labor but also with gas engine operated machines. Even for irrigation the electric pump must compete with the Diesel motor on one hand and the discarded automobile engine on the other. As yet electric power has little place in supplying motive power. In greenhouses, hotbeds, poultry farms, and in the dairy barn, electricity plays an important part in production. The irksomeness of labor is relieved but, in general, electricity substitutes for other sources of power. The development of cheaper small power units and equipment for grinding, hoisting, elevating, sawing offers

[1] Hurst, M. M., "Power and Machinery in Agriculture," U.S.D.A., M. P. 157, 1933.

primarily an opportunity to relieve the gas engine, and by increasing the investment in equipment, may reduce the need for labor.

Three phases in which electrification would modify existing organizations are cited: Pump irrigation, community reorganization and intensification of farm productivity.

The stimulus given to pump irrigation by rural electrification can easily be overemphasized. As badly as the drought areas need water the use of electricity for pumping is limited by the scarcity of water and the depth of wells as well as by absence of power lines. There are numerous shallow water areas, of which the Hereford area is one, where pump irrigation has been developed. In many, it is already developed to the limit of the supply of water or to the limit of economic feasibility under fuel oil pumps. Another field for pumping lies in lifting water for supplementary irrigation in areas supplied by gravity water systems. These irrigated locations, although they may lie in areas of sparse population, are usually closely settled, are frequently near sources of power and may offer excellent fields for development of rural electrification but it is not to be supposed that the type of production on dry land will be materially influenced by the development of electric power. Even in the Hereford area, which requires nearly one mile of line per farm, the farms are much smaller than is normal in adjacent dry farming areas. A preliminary survey of irrigation in this particular area indicates that the cost of pumping per hour averaged the same for electrically driven as for all fuel oil operated pumps and was nearly double the cost of the most efficient fuel oil motors. At the time this survey was made electricity was available only at a flat monthly rate. Consequently electrically driven pumps were operated the greatest possible number of hours. Electric pumps averaged 650 hours per year compared with only 236 hours for those operated by other sources of power. I quote from a progress report prepared by the Resettlement Administration. "If some arrangement could be made so that only the electricity actually used is paid for, electrically driven pumps might prove the most economical. It has been expressed by many operators in the area that if the Rural Electrification program will give the farmers a rate at which they can afford to use electricity, electrically-driven pumps will replace many of the present type of power units." Apparently the cost of current would have to be reduced considerably before the electric motor replaced the fuel operated engines, and in any case little change in farm organization would result therefrom.

From the economic viewpoint I think we should consider which farm operations are adapted to the use of electric power and under what conditions is it most economical than to consider what phases of farm work can be adapted to the use of electricity. Rural electrification will proceed more slowly than it has in recent years if it awaits the development of replanned and resettled communities. Some readjustment in community organization may take place but such a reorganization meets natural resistance from custom and human inertia. Furthermore, certain advantages accrue to the farmer who lives close to his fields and his work. Absentee operation of land is not at all uncommon in the grain areas and even there it carries with it some decided disadvantages. Concentration of residences gives rise to economies particularly in the fields of political

administration, schooling and road building and maintenance. Even though such concentrated communities could take advantage of rural electric lines I doubt seriously if the economies of securing electricity under those conditions, or the necessity of choosing between electricity and other sources of power would be sufficient to give much stimulus to community concentration.

It is on the intensification of productivity, or the increase of output per man or per unit that the economic justification of rural electrification as a source of power for farm operations finally rests. A certain limited field is open here in the preservation of products which makes possible more orderly selling on restricted markets. Another field lies in reducing labor used, particularly if the labor is hired. But these advantages are gained through greater investment in equipment, and cash expenses for operation. I suspect that it means an increase in the farmer's fixed costs, consequently a greater need for increased and continued income. It may mean less flexibility in the expenses of operating the farm and I wonder how much the farmer and his wife have gained if under the influence of the fixed costs for electric operation the time saved by the equipment must be utilized in home crafts and weaving in order to pay the monthly electric bill.

Discussion by W. E. Keepper

Cornell University

Administrator Carmody has presented in his paper an enlightening discussion of the progress and future prospects of rural electrification with special emphasis on the Rural Electrification Administration. He has failed, however, to give much consideration to other agencies also active in the field.

Of the farms now electrified in the United States about 95 per cent receive their electric service exclusively through the facilities of private utilities. Before the REA was conceived in 1935, approximately 750,000 farms in the United States had already been electrified by private companies. During the past 2½ years, approximately 350,000 farms have been electrified, of which only 50,000 or about 15 per cent have actually received current over lines financed by the REA.

In fairness to all agencies concerned, Mr. Carmody's contrast of progress in rural electrification in the period 1931–34, just prior to the establishment of the REA, with that in 1935–37 should be qualified considerably. Examining a somewhat comparable industry reveals that the number of telephones used in the United States actually declined 17 per cent during the period 1931–34. Since that date, they have increased considerably without the stimulus of competition from a government agency. In view of the above and stagnation of business conditions in general during the depression period, the expansion of even .7 of one per cent in the number of farms electrified might be a fact more to be commended than criticized.

Competition of the REA—real, threatened, or imagined—has been only one of many factors which have helped speed up rural electrification in the past two and one-half years. It is true that the REA has helped to put fear into the hearts of the private utilities. This psychological effect cannot be measured by a comparison of rural electrification activity in

1931–34 with that in 1935–37. Too many other factors of great importance have also been effective in this past two and one-half years. Farm purchasing power has increased; more and cheaper electrical appliances for farm use have been developed; technological developments have led to cheaper line construction, both by private companies and the REA; electric companies are less pessimistic; business activity in all fields has increased; and smouldering public interest has been aroused, partly by the REA.

There has been some change in the attitude of private companies. The change is evidenced by generally lower rate structures, more favorable line extension plans, and an attempt on the part of the electric companies to create a more favorable farmer-power company relationship. The fact that over 80 per cent of farm electrification in the past two and one-half years of rapid development has been done by private utilities with private funds indicates that this change is active and not potential.

In considering the future of rural electrification, it must be kept in mind that five out of six farms do not have electricity. Some of these farms may never be serviced, either because they are located in an area unsuited to permanent agriculture, because they are too far from their neighbors, or because they would not take the service at any price.

Before contemplating how rural electrification can best be completed, present facilities should be examined briefly.

As Mr. Carmody has pointed out, past developments have started in thickly populated urban areas. A network of transmission lines has been built from city to city and village to village. Distribution lines have extended only into the more prosperous agricultural areas. For an industry built on sound business practises, this was the logical procedure.

Governments have followed these same principles in placing their system of hard roads so as to serve the most populous areas first. Farm-to-market roads are only a recent development. Every successful business concern goes after the most profitable business first and leaves the less profitable business until last. Intelligent farmers do the same thing in their businesses.

The result of this logical business development on the part of the private utilities was that much of the better rural area was electrified. When compared with the area served by existing companies in terms of number of customers, total power consuming capacity, and contiguity of territory, the unelectrified area is less profitable. An electric power business, if cheap service is to be rendered, must of necessity be a large scale project. It is difficult to conceive of a group of inexperienced cooperatives taking these relatively less profitable, scattered areas and moulding each of them into a self-supporting business organization.

In many areas, resorting to the cooperative approach at this time, might be compared to an unskilled workman who wishes to make himself a suit. He goes to a tailor and requests the trimmings of cloth left over from a suit which is already cut out. The workman probably would end up with a sorry-looking garment, both because of his inexperience and the type of material with which he has to work. The tailor, however, because he has the experience, the equipment, and a suit almost completed, could use those trimmings to an advantage as pocket flaps, coat lapels, and belt loops.

A well-developed power company which already has the experience, the equipment, and which has met most of its overhead costs out of existing business could absorb this less profitable rural business without undue additional cost. However, this would be extremely difficult for a group of relatively small, inexperienced cooperatives, each with its own set of overhead expenses and with nothing but the less profitable territory with which to work.

The cooperative approach is commendable and should be used in those enterprises where, from the start, it has some chance for success through its own resources. Its chances for success in the field of rural electrification would have been much greater had it been started early in the development of the electric industry. At that time cooperatives might have organized on a large scale, and included some of the more profitable territory. In many cases that time has passed. Unless cooperatives can now take over many of the existing facilities including both the plant and lines of the private companies, the establishment of numerous small-scale cooperatives, means an uneconomic duplication of existing equipment and facilities. The existing electric companies already have their line-maintenance crews, a well-developed and competent office force, trained field men, and years of experience. They are already offering a very reliable electric service to their present customers.

Because particular emphasis has been placed on government financed and organized cooperatives as an important factor in the future of rural electrification, additional questions should be raised as to this approach. It should be pointed out that past experiences with government organized and financed farmers' cooperatives for the marketing of farm products have not been too satisfactory.

The practise of the REA in lending up to 100 per cent of the cost of the lines might also be questioned. Past experience has shown that the farmers should have considerable equity in the cooperative enterprise for which they are borrowing money. Other government lending agencies have found that farmers' cooperatives should have at least 40 per cent equity when loans of this type are made.

The question might also be raised as to whether the local cooperative will attach sufficient importance to the placement of lines in relation to the permanency of the agricultural areas, when the government is loaning up to 100 per cent of the cost of the lines.

An examination of a less complex but similar enterprise raises further questions. Farmer-owned and farmer-managed telephone companies, because of poor management, unreliable service, and inadequate maintenance of lines, in many areas have been taken over by private companies. These same factors will be operative in determining the fate of the electrical distributing cooperatives. Reliability of service—a factor largely beyond the control of Washington supervision—will be of major importance in determining their success or failure. Let the farmer lose a few incubators of eggs, receive a few cans of warm milk back from the plant, milk the cows a few times by hand, and what will be his attitude toward his electrical cooperative?

On the basis of past experience, it appears that the rapidity with which rural electrification will be completed depends mainly upon the future improvement in farmer purchasing power and the difficulty which private

utilities have in securing funds for expansion. This difficulty in securing funds is not reflected by quotations on senior securities, but by quotations on other issues. Most old established companies have already sold all the senior securities which their financial structures will permit.

Private companies must be able to show earnings before the investing public will be interested in their issues. Factors affecting the ability of the private utilities to show earnings, such as federal and state taxation policies and other government-business relationships, are problems in themselves.

Returning to the example of New York State, where, as Mr. Carmody has pointed out, no lines have been financed by the REA, about 6,500 miles of lines have been built by private companies in 1936 and 1937. This increased the mileage in the state by about 27 per cent and we now have about 65 per cent of the mileage needed to serve all permanent agricultural areas.

In conclusion, we should give the REA credit for making possible the electrification of about 15 per cent of the farms electrified during the past 2½ years and for its being in part responsible for the increase in rural electrification activities by private utilities. However, I believe a large part of rural electrification in the future probably will be done by properly regulated private electric companies.

TWENTY-EIGHTH ANNUAL MEETING OF THE AMERICAN FARM ECONOMIC ASSOCIATION

The twenty-eighth annual meeting of the American Farm Economic Association was held in Atlantic City, Chalfonte-Haddon Hall, December 28, 29 and 30, 1937.

Annual Business Meeting

The annual business meeting of the Association convened at 9:00 A.M., Thursday, December 30, 1937.

Report of Election Tellers

The total number of ballots counted was 498. The following officers were elected:

President	E. C. Young
Vice-Presidents	J. E. Lattimer
	H. B. Price
Secretary-Treasurer	Asher Hobson

(signed) G. P. Scoville
H. M. Dixon
Election Tellers

Report of the President

Our watchful Secretary reminded me that my predecessor established a "tradition" a year ago when he complied with the request for a presidential report. There really is not much left for the President to say in a formal report. His major responsibility lies in formulating the program and the results of that have been demonstrated during the past two days. If they have not met with favor, I am not gifted with eloquence of sufficient persuasiveness to alter your opinions at this stage. However, as the President no longer is expected to prepare a formal paper for the meetings, a brief report may be in order. The comment might be made in passing that your presiding officer believes a very desirable tradition was established when the President discontinued the practice of appearing on the program with a regular paper. As long as he is primarily responsible for selections for the program it saves him embarrassment if he is not required to provide a spot for himself.

A welcome opportunity afforded me by this report is that of expressing appreciation for the honor bestowed upon me by my elec-

tion a year ago. It also permits acknowledgment of my indebtedness and appreciation for the very generous assistance of those who accepted assignments on the program or assisted me with suggestions for its development. The membership of this Association represents a considerable variety of interests and the endeavor in preparing the program was to serve as many fields as possible. I hope you will not censure me too severely if it has failed to meet your expectations in this respect. I am particularly indebted to my predecessor, Dr. Joseph S. Davis, for the many invaluable suggestions he has given me.

One of the features of this Association from which it draws much strength is the general willingness of its members to cooperate fully in its activities. Let us all foster this spirit and extend the usefulness of the Association by adding to its membership, by making available to the Editor increasing amounts of material from which selections for the JOURNAL may be made, and by participating actively in its programs.

Respectfully submitted,
(signed) O. B. JESNESS, *President*

Report accepted as read.

Report of the Secretary-Treasurer

Finances.—The Association has experienced another satisfactory year. Despite markedly increased printing expenditures, it still has a surplus from operations. Total receipts of the Association amounted to $6,194.03; its total expenses were $4,005.98; resulting in an operating balance of $2,188.05. The expenses, however, include the cost of printing three numbers only of the JOURNAL instead of the usual four numbers. In order that 1937 expenses be comparable with those of 1936, they should include the cost of the November issue of the JOURNAL—$621.77. This figure reduces operating surplus to $1,566.28 as compared with $2,251.92 for 1936. Expenses increased from $3,728.63 in 1936 to $4,005.98 for three numbers of the JOURNAL, and to $4,627.75 for four numbers of the JOURNAL. Printing costs increased $963.97 in 1937 as compared with 1936. This increase is due almost wholly to the enlargement of the JOURNAL from 800 to 1,000 pages.

The financial operations for the fiscal year ending November 30, 1937, and the financial status of the Association on that date are set forth in the statement which follows.

OPERATING STATEMENT
THE AMERICAN FARM ECONOMIC ASSOCIATION
Year Ending November 30, 1937

Operating Income			
Receipts from dues		$ 5,890.58	
Back numbers sold		248.78	
Miscellaneous (mostly advertising)		54.67	$ 6,194.03
Operating Expenses			
JOURNAL OF FARM ECONOMICS			
Volume XIX, 3 issues	$3,066.82		
Volume XIX, 4 reprints	402.17	3,468.99	
Postage		169.16	
Annual meeting expense			
Annual meeting and ballots, 1936	145.80		
Ballots and preprints, 1937	25.52	171.32	
Back numbers purchased		104.00	
Office supplies		37.10	
Miscellaneous		55.41	4,005.98
Excess, receipts above expenses from operations			2,188.05
Plus Non-Operating Income			
Interest and dividends		571.53	
Accrued interest, Savings Account		10.08	
		581.61	
Less, loss on sale of bonds		18.56	563.05
Total Excess, receipts above expenses for the year			$ 2,751.10

FINANCIAL STATEMENT
THE AMERICAN FARM ECONOMIC ASSOCIATION
December 1, 1937

Assets			
Cash		$ 322.65	
Stocks and bonds—cost		18,399.15	
(Market value, Nov. 30—$16,108.14)			
Savings Account		526.77	$19,248.57
Proprietory Interest			
Net worth, December 1, 1936		$16,497.47	
Plus net returns for the year			
Operating	$2,188.05		
Non-operating	563.05	2,751.10	$19,248.57

A complete report of the operations of the Investment Committee has been made to the Executive Committee. The investment policy during the year just closed has been to shift from government bonds and cash in Postal Savings and Savings Accounts, yielding less than 3 per cent, to common stocks. On November 30, 1937, the market value of the securities held by the Association was $2,291.00 less than their cost to the Association. The rate of yield on present holdings is markedly above that of the holdings of the year previous.

Membership.—During the year covered by this report 171 new members joined the Association. One hundred old members dropped or were dropped from the rolls. The present membership of 1,191 represents a net gain of 71.

Seventy-two members were dropped because of delinquency. It has been the policy of the Office of the Secretary-Treasurer to carry delinquents six months before removing their names from the rolls. This means that the dropped delinquents receive two numbers of the JOURNAL for which the Association receives no

payment. This year there were 72 such delinquents involving a gift of 154 copies of the JOURNAL. Most of these delinquents receive the first two numbers—the most expensive issues. It is proposed that the JOURNAL be stopped immediately the account becomes delinquent. Such a policy will necessitate considerably more work in the Office of the Secretary-Treasurer, but will result in considerable savings to the Association.

The Secretary-Treasurer again urges upon each member the desirability of using his influence to increase the membership of the Association. It is only through increased membership that the Association can hope to reach a self-sustaining financial basis.

Respectfully submitted,
(signed) ASHER HOBSON, *Secretary-Treasurer*

Report accepted as read.

The Executive Committee accepted the proposal of the Secretary-Treasurer, that the JOURNAL OF FARM ECONOMICS be discontinued as soon as a member becomes delinquent. The business meeting confirmed this action of the Executive Committee.

Report of the Auditor

I certify that I have examined carefully the accounts of the Secretary-Treasurer of the American Farm Economic Association for the year ending November 30, 1937. I have checked all entries against supporting vouchers and find them in agreement. I have confirmed the state of assets by an examination of the bank statement and by checking the securities owned by the Association. I certify that the books have been carefully, correctly, and neatly kept, and that the financial statement made by the Secretary-Treasurer reflects accurately the financial transactions and the financial situation of the Association as shown by said accounts.

The new system of accounting now in use provides a record of the Association's transactions which can be easily and quickly checked. I am sure that the Association is indebted to those in charge of these records for the competent manner in which they are maintained.

Respectfully submitted,
(signed) WALTER H. EBLING, *Auditor*

Report accepted as read.

Report of the Editor of the Journal of Farm Economics for the Calendar Year, 1937

The four numbers of the JOURNAL OF FARM ECONOMICS in Volume XIX for 1937 totaled 1,001 pages, which represents an in-

crease of 25 per cent in the size of the JOURNAL over any preceding year. The JOURNAL reached the maximum limit in pages permitted by the Executive Committee in its action of a year ago. The material published included 63 papers, 29 discussions, 14 notes, and 43 book reviews.

In addition to the published material a larger volume of material was submitted for publication than in the preceding year. Although the proceedings took up as large a portion of the JOURNAL as in the preceding year, this left more space for contributed articles due to the larger size of the JOURNAL this year. However, because of the volume of articles submitted it was necessary to return to the authors a larger number of articles than were used in filling the JOURNAL. While the Editor regrets that it was impossible to use a number of good articles submitted, it shows a wholesome situation and if the Editor can be wise in his selections it provides better material for the JOURNAL.

Because of the volume of material submitted, the Editor took considerable liberty in reducing the scope of tables, cuts, and volume of papers submitted, which he trusts was acceptable to the contributors.

At the first of the year special effort was made to reduce the scope of the round-table discussions so that the pertinent points in practically all of the proceedings of last year's annual meeting were recorded. The Editor is grateful to those chairmen of the round tables who assisted in the editing of this material, and he would like to commend their action to those chairmen who did not render similar assistance and those who are chairmen of this year's round tables.

Special effort was made to secure book reviews which the Editor felt were of interest to the membership of the Association. As a consequence a larger number of book reviews appear in the last volume than in the preceding volume of the JOURNAL. While this effort has met with some commendation it is always helpful to an editor to receive comments from members of the Association as a guide to putting out a better JOURNAL. The Editor makes this remark in all humility as he looks forward eagerly to passing the opportunity of publishing a better JOURNAL into the hands of someone better qualified for the duty.

In presenting this report the Editor wishes to acknowledge the fine cooperation of the associate editors; especially the work of Dr. W. C. Waite in taking the responsibility for the notes section, and to Mr. S. W. Mendum, and Dr. F. F. Lininger for the preparation of the news items for publication. Furthermore, the report

would not be complete without acknowledging the fine cooperation of the members of his own staff in reading manuscripts and otherwise helping to carry the burden of the editorship.

After the experience of the past year it is recommended that the Editor should not attempt too large an initial issue of the JOURNAL if it necessitates his personally reducing the discussions to smaller space as this is apt to cause some delay in the publication of the first issue of the JOURNAL. The time is rather short for many of the chairmen of the round tables to reduce the material and return it to the Editor in time for prompt publication. In anticipating the close of his responsibilities as Editor, he wishes to lend moral support to the new Editor in keeping contributed articles including tables and cuts within a maximum scope of ten or twelve pages each in the JOURNAL in order that a larger number of contributors may have the opportunity of having their material published. This is especially true in light of the apparent increase in volume of material submitted. There are still many ways in which the members can assist in getting the JOURNAL out promptly and in better form through promptly returning manuscripts, and in the careful editing of their articles before they are submitted to the Editor and put into galley proof.

The Editor wishes to commend to the consideration of the other members the opportunity of serving as Editor when the opportunity presents itself. It affords a broadening experience and an opportunity of becoming much better acquainted with many members of the Association through correspondence. Sincerely, he wishes to express his appreciation of the opportunity of having served the Association in the capacity of Editor. If in any case he has offended through alteration of articles or failure to publish a manuscript as promptly as the contributor would like he begs the contributor's pardon. It is sometimes difficult for an Editor to keep a writer informed of the status of his manuscript as it is impossible to determine how many articles can appear in a given issue of the JOURNAL until the editorial work on that issue is completed. In closing, he wishes to his successor the same fine cooperation which he has received from the members and trusts he will feel rewarded for the effort he puts forth to publish a good JOURNAL in spite of its shortcomings.

Respectfully submitted,

(signed) H. C. M. CASE, *Editor*

Report accepted as read.

Report of the Farm Credit Committee

The Farm Credit Committee, cooperating with other organizations in the central committee known as the National Joint Committee on Rural Credit, gave its major attention to the question of land appraisal during the past year. Marked progress has been made in bringing together institutional lenders to discuss appraisal methods and to cooperate in the preparation of a report which, it is hoped, will come to maturity in the near future.

The interest stimulated by this committee is largely responsible for the holding of a number of appraisal clinics in the Midwest, which have been participated in by a number of the institutional lenders. Some of these sessions have been for representatives of a single institution, while in other instances, a number of institutional lenders have met for a one or two day clinic on the question of land appraisal. Recognizing that a large part of the success of any land credit system is dependent upon a proper appraisal of the property, it is believed that marked progress has been made, growing largely out of the activities of this committee.

It is recommended that the American Farm Economic Association continue its cooperation by being represented on the National Joint Committee on Rural Credit. It appears that the work is the type of thing which the Association should sponsor in every possible way. At the present time, there is every indication that the interest in land appraisal will continue to grow, with additional meetings being called in other parts of the country.

Respectfully submitted,
(signed) H. C. M. Case, *Chairman*

Report accepted as read.

Report of the Agricultural Census Committee

The Agricultural Census Committee held a meeting in Chicago just following the 1936 meeting of the Association. It has also carried on the following activities during the year:

1. Published a report (Social Science Research Council Bulletin No. 40) dealing with the Census of Agriculture and proposals for its improvement.
2. Carried on correspondence and interchange of views both within the Committee and with others concerned. These interchanges have had to do principally with changes in the schedule and in enumeration procedure.

3. Progress has been made toward the development of a more orderly and effective procedure for bringing the views and proposals of members of this Association into definite consideration by the Bureau of the Census. This objective has been furthered by the arrangement worked out this year through the American Statistical Association whereby the agricultural economists have a representative on the General Census Advisory Committee.

4. This Committee took the responsibility for arranging and conducting a round table session as part of the program of this present session of the Association.

In addition, a member of the Committee, Professor J. D. Black, assisted by Dr. Allen, published in the September issue of the *Journal of the American Statistical Association* the results of a study of adequacy of coverage in recent agricultural censuses.

Your Committee recommends that continuance or discontinuance of the committee and its terms of reference if continued, be reviewed by the Executive Committee after it receives a report on the interchanges of views now under way with the Bureau of the Census and the Social Science Research Council.

Respectfully submitted,
(signed) M. R. BENEDICT, *Chairman*

Report accepted as read.

Report of the Committee on Recruiting and Training Personnel

The Committee on Recruiting and Training Personnel in Agricultural Economics worked along two lines during the past year. First, an attempt was made to get under way a survey of existing conditions pertaining to the training of present personnel and the facilities of all kinds available for the training of men in the field of agricultural economics. It was hoped that such a survey could be made in cooperation with the Social Science Research Council. In March, 1937, a meeting was held in Washington, D. C., which was attended by representatives of a similar committee of the Social Science Research Council and three of the five members of your committee. At this meeting it was agreed to ask the Social Science Research Council to undertake a comprehensive survey of the type indicated above. The answer of the Social Science Research Council was not received until November. Funds were not available for the survey. Nothing further has been done on this phase of the work.

The second line of action has dealt with the opportunities for advanced study by those who now are employed by federal agen-

cies. The committee has conferred and corresponded with officials of the United States Department of Agriculture concerning the matter. Within the Department of Agriculture a study of this problem is under way. The conclusions from this study are not yet available. It has been considered advisable to await the report of this study before proceeding further with this phase of the work.

It is recommended that the American Farm Economic Association make provision for the continuance of this work. If funds can be secured a comprehensive survey should be undertaken.

It is further recommended that the work in cooperation with the United States Department of Agriculture be continued and that the Association be prepared to cooperate with the Department whenever a satisfactory plan for improving the opportunities for graduate study for federal employees is agreed upon.

Respectfully submitted,
(signed) W. E. GRIMES, *Chairman*

Report accepted as read.

Report of the Committee on Marketing Research

Realizing the need for greater coordination of marketing research and for projects which would clarify basic principles of marketing, A Committee on Marketing Research was appointed early in 1936. This committee consisted of Harold B. Rowe, Harry R. Wellman, and Frederick V. Waugh. During the first year of its existence the committee corresponded with a number of marketing men throughout the country and prepared a brief discussion of the scope and objectives of research dealing with the marketing of agricultural products. A group of marketing men was called together at the time of the annual meeting of the American Farm Economic Association in Chicago in December, 1936 to discuss this statement and to suggest the type of work the committee should do in 1937.

The Social Science Research Council was interested in the work of this committee from the start, and Dr. H. B. Price was added to the committee at the suggestion of the Council. Early in 1937 a joint committee was set up which, at the present time, consists of the following members: Reavis Cox, I. G. Davis, W. E. Grimes, H. Bruce Price, Harold B. Rowe, T. W. Schultz, O. C. Stine, Warren C. Waite, Frederick V. Waugh, and Harry R. Wellman.

Three meetings of this joint committee have been held during 1937. The statement of scope and objectives of marketing research has been revised and detailed outlines have been prepared on three

subjects illustrating the general approach to marketing problems which the committee recommends. These three subjects are: "The Economic Effects of Market Prorates," "The Regulation of Interstate Trade in Farm Products," and "Tobacco Marketing." This material has been mimeographed and was discussed at the round table on marketing at Atlantic City, December 29.

As a result of the discussions at the round table the committee wishes to make two recommendations:

(1) That a committee on marketing research be continued for at least one more year to work with regional groups in preparing discussions of a few other marketing problems.

(2) That the American Farm Economic Association be urged to appoint an additional committee to study the organization of research in the Federal Government and in the state colleges dealing with the marketing of farm products with a view to suggesting ways and means of advancing the effectiveness of the research.

Respectfully submitted,
(signed) FREDERICK V. WAUGH, *Chairman*

Report accepted as read.

Report of the Committee on Definition of Terms in Farm Management

The Committee on Definition of Terms in Farm Management was appointed by the President of the Association in compliance with a motion adopted at a conference on Definition of Terms in Farm Management held during the 1936 meeting of the Association requesting the President to appoint a committee of seven members to define farm management terms and to submit these definitions to the Association for discussion and approval.

During the past summer several members of the Division of Farm Management and Costs of the Bureau of Agricultural Economics and of the Agricultural Economics Section of the Extension Service worked with the two members of the committee in Washington in reviewing approximately 500 farm management publications for the purpose of compiling a list of farm management terms, together with the published definitions or descriptions of the terms listed. This material which included more than a hundred terms and about 1,500 definitions was sent to the committee membership with the request that each member submit to the chairman a suggested list of terms and definitions for inclusion in the Committee's report to the 1937 annual meeting.

The suggested lists submitted by the members of the Committee, together with the list of terms and definitions previously adopted by the Association, were combined in a mimeographed pamphlet which was mailed to state and other farm management workers with a request that they indicate a choice where more than one definition was submitted or that they add the definition which in their opinion would be more satisfactory. It was also requested that they add or delete terms.

On December 20, workers in 30 states and several other government or private agencies had replied. A summary of the results of this survey was presented to the round table on Definitions in Farm Management, yesterday.

The widespread response to the mailed inquiries and the discussion at the Round Table indicate a very keen interest in the problem of farm management terminology. It also indicates that opinions differ both as to terminology and as to statement of definitions. To adequately analyze the opinions submitted has required more time than the Committee could devote to the task previous to this meeting. Consequently, it is not prepared to submit to the Association a final report on any definitions at this time.

Your committee offers the following recommendation: That the Committee be continued during the coming year with such changes in membership as seem advisable to the incoming administration.

Respectfully submitted,
(signed) H. M. DIXON, *Chairman*

Report accepted as read.

Report of the Committee on Association Policy

At the 1936 annual meeting the Report of the Committee on Association Policy was discussed. Final action on the report as a whole was delayed until the 1937 meeting, when it was to be made a special order of business.

The proposed amendments to the constitution were adopted separately. The report as a whole was adopted.

Professor G. F. Warren proposed an amendment to Article V, by substituting for the first sentence, second paragraph the following:

> A nomination may be made by members provided it is signed by at least 25 members and reaches the Secretary not later than October 1. The nominating committee shall add at least enough names to bring the total up to two nominations for each position except for Secretary-Treasurer, and may make additional nominations for this position.

That portion of Article V to which the amendment applies now reads:

> The President and the two preceding past Presidents shall constitute a nominating committee. The President shall act as chairman of the committee.
>
> Two nominations shall be made for each office except for Secretary-Treasurer, for which one nomination shall be presented. No person who has served a term as President shall be nominated for that office or eligible for election to it.

After discussion, Professor Warren's amendment was referred to the Executive Committee for consideration, with instructions to submit recommendations to the next annual business meeting of the Association.

Executive Committee Action

Meeting of December 29, 1937

The price of the February issue, "Proceedings Number," of the JOURNAL OF FARM ECONOMICS, was increased from $1.25 to $2.00 for single copies.

The Committee adopted for recommendation to the annual business meeting the proposal of the Secretary-Treasurer that the JOURNAL be stopped when a member becomes delinquent in the payment of dues.

The incoming Editor is to be granted discretion in the matter of experimenting with the appointment of an advisory board in addition to his associate editors, to assist him in developing editorial policies for the JOURNAL.

Bonds for the Secretary-Treasurer were set at $5,000, and for his assistant, $1,000.

Meeting of December 30, 1937

T. W. Schultz was appointed Editor of the JOURNAL OF FARM ECONOMICS for the ensuing year.